Perceived Conflict with Off Leash Dogs at Boulder Open Space and Mountain Parks

Sponsored by the City of Boulder Open Space and Mountain Parks and conducted by

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Executive Summary

- This study described the extent to which visitors to the City of Boulder Open Space and Mountain Parks (OSMP) evaluated 11 human-dog interaction variables as problems.
- Data for this project were obtained from on-site surveys (n = 951) conducted at 16 OSMP locations during the summer of 2006. Sampling occurred at trailheads that provide access to trails allowing dogs to be managed under voice and site control.
- Questions related to perceived conflict examined 5 *direct* (e.g., dogs jumping on visitors) and 6 *indirect* (e.g., dogs causing wildlife to flee) human-dog interactions.
- We operationalized perceived conflict as: (a) no conflict, (b) interpersonal conflict, (c) social values conflict, and (d) both interpersonal and social values conflict.
- Summary of Key Conflict Findings
    1. All behaviors were thought to be a "slight" to "extreme" problem by some portion of the survey respondents. The most problematic behaviors were owners not picking up after their dog, dogs causing wildlife to flee, dogs jumping on a visitor, dogs pawing a visitor and dogs flushing birds.
    2. Although some statistical differences existed between (a) dog guardians versus non-dog guardians, (b) individuals who walk their dogs at OSMP versus those who do not, and (c) frequency of dog walking at OSMP, the magnitude of these differences was small.
    3. Nearly three-quarters (73%) of the respondents (14% – social values conflict; 59% – interpersonal and social values conflict) experienced some form of conflict with off leash dogs or their guardians at the OSMP locations studied.
- Recommendations
    1. The current implementation of the Voice and Sight Tag (VST) program is a necessary first step at reducing human-dog interaction conflict at areas managed by OSMP, but it may not be sufficient to eliminate conflict.
    2. To obtain a VST tag, visitors must view a video and agree to control their off leash dogs in a manner described in the video. Not included in the registration process, however, is a behavioral component where individuals demonstrate that their dogs are under voice and sight control. One recommendation would require individuals to not only watch the video, but also pass a written test and a physical demonstration of the their ability to control their dogs.
    3. Resolving the social values conflict will require continued education efforts of both dog guardians and non-dog guardians by the City of Boulder OSMP. A brochure and / or a video for non-guardians explaining the goals and objectives of the VST program, as well as appropriate behaviors of off leash dogs may help in this regard. If education efforts are not effective, a reduction in the number of trails allowing off leash dogs may be necessary.
    4. Formal education programs and formal sanctions (e.g., fines, loss of voice and sight privileges) may not be sufficient for resolving the interpersonal conflict. Part of the responsibility needs to be shouldered by OSMP visitors. Over three-quarters (78%) of the respondents believed that "it is OK for a visitor to say something to a dog owner who does not have his or her dog under control." Agency encouragement of such informal sanctions, when combined with the formal sanctions, may promote a higher quality experience for all visitors.
    5. The VST program should be periodically monitored to determine whether conflict is being reduced.

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Introduction

Researchers have analyzed recreation conflict for over four decades (e.g., Graefe & Thapa, 2004; Lucas, 1964). Although most researchers have examined interpersonal (i.e., goal interference) conflict (e.g., Jacob & Schreyer, 1980; Schneider, 2000), others have introduced and explored social values (i.e., social acceptability) conflict (Carothers, Vaske, & Donnelly, 2001; Vaske, Donnelly, Wittmann, & Laidlaw, 1995; Vaske, Needham, & Cline, 2007).

Interpersonal conflict occurs when the presence or behavior of an individual or group interferes with the goals of another individual or group (Jacob & Schreyer, 1980). A skier, for example, may experience interpersonal conflict if he or she is cut off by or collides with a snowboarder (Vaske, Dyar, & Timmons, 2004). Most recreation research has focused on interpersonal conflict between different activity groups such as non-motorized and motorized watercraft (Lucas, 1964; Shelby, 1980), skiers and snowboarders (Thapa & Graefe, 2003; Vaske, Carothers, Donnelly, & Baird, 2000; Vaske et al., 2004), hikers and mountain bikers (Carothers et al., 2001; Ramthun, 1995), hunters and non-hunters (Vaske et al., 1995), and cross-country skiers and snowmobilers (Jackson & Wong, 1982; Knopp & Tyger, 1973; Vaske et al., 2007).

Social values conflict occurs between groups who may not share similar norms / values about an activity (Ruddell & Gramann, 1994; Vaske et al., 1995). Unlike interpersonal conflict, social values conflict is defined in the literature as conflict that can occur even when there is no direct contact between the groups (Carothers et al., 2001). For example, although encounters with llama packing trips may be rare, individuals may philosophically disagree about the appropriateness of using these animals in the backcountry (Blahna, Smith, & Anderson, 1995).

A study at Mt. Evans, Colorado examined the distinction between interpersonal and social values conflict (Vaske et al., 1995). Interpersonal conflict between hunters and wildlife viewers was minimized due to the region's topography and management regulations separating the two activity groups. Conflict experienced between the groups was primarily attributed to differences in value orientations regarding the appropriateness of hunting and wildlife viewing. Nearly all of the non-hunters did not observe hunting-associated behaviors (e.g., see hunters, see animals be shot), yet still perceived social values conflict with hunters. Carothers et al. (2001) examined interpersonal and social values conflict among mountain bikers and hikers. Hikers were more likely to report both interpersonal and social values conflict than bikers.

In these investigations, perceived conflict was operationalized by combining responses from two sets of questions. First, individuals indicated how frequently events happened to them during their visit. In the Mt. Evans study (Vaske et al., 1995), events included three non-hunting (see people feed wildlife, disturb / harass wildlife, and see dogs chase wildlife) and three hunting (see hunters, hear guns being fired, and see animals being shot) situations. Responses were analyzed as "observed" (i.e., at least once) or "did not observe" the event (i.e., never saw). Second, respondents evaluated the extent to which they perceived each event to be a problem. Items were coded on a scale from "not a problem" to "extreme problem." For analysis purposes, responses were recoded into two categories ("no problem" or "problem").

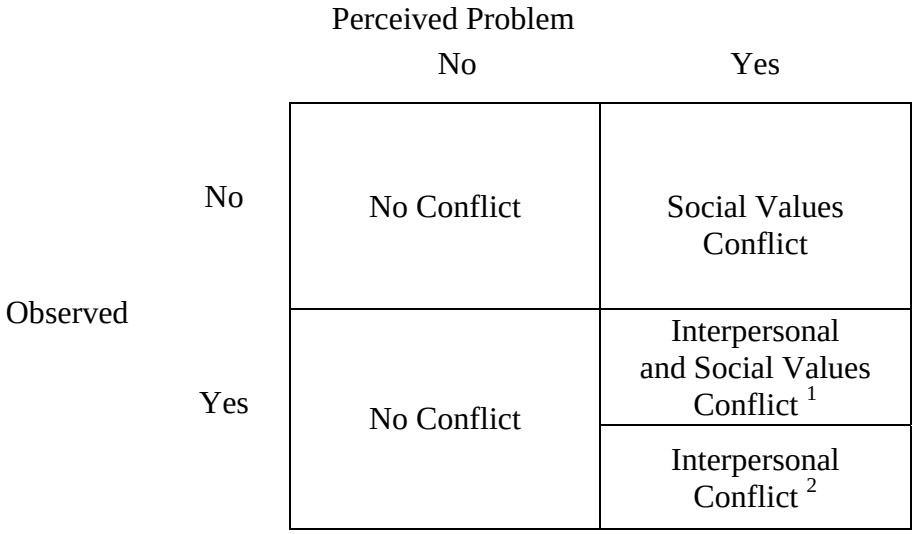
Combining the frequency of occurrence (observed, not observed) variables with the corresponding perceived problem (no problem, problem) variables for each respondent produced conflict typologies with three possible attributes. Individuals who observed or did not observe a given event, yet did not perceive it to be a problem were considered to have experienced no conflict (i.e., no interpersonal or social values conflict). Those who never saw a given event, but believed that a problem existed for the event were considered to be expressing a conflict in social

values. Conversely, those who witnessed a particular event and believed that it had caused a problem were judged to be indicating interpersonal conflict.

These procedures used to operationalize "no conflict" and "social values conflict" are conceptually clear (Carothers et al., 2001; Graefe & Thapa, 2004; Vaske et al., 1995). If recreationists do not consider a situation / event to be a problem, regardless of whether or not it is observed, no conflict is apparent. If an individual does not observe an existing situation, but believes that it is problematic, the conflict stems from his or her social values. Conceptual problems, however, may arise when differentiating interpersonal from social values conflict. People who observe a situation / event *and* judge it to be a problem may be expressing interpersonal, social values, or both types of conflict. Recognizing this conceptual shortcoming, Vaske et al. (2007) further classified respondents in the interpersonal conflict cell (Figure 1) based on their agreement with the statement "just knowing that snowmobilers (or skiers) are in the area bothers me." Individuals who were initially identified as having interpersonal conflict, yet agreed that just knowing snowmobilers (or skiers) were in the area bothered them, were reclassified as having *both* interpersonal and social values conflict. Respondents who disagreed with this statement were considered to be reporting only interpersonal conflict.

The current study used the refinements developed by Vaske et al. (2007) for defining visitors as experiencing (a) no conflict, (b) interpersonal, (c) social values or (d) both interpersonal and social values conflict. Individuals in the "interpersonal and social values conflict" cell indicated that they observed a given situation, perceived that situation to be a problem, and *agreed* with the statement "Just knowing that off leash dogs are allowed in Open Space and Mountain Parks (OSMP) areas is a problem for me, even if I never see them." Individuals in the "interpersonal conflict" cell indicated that they observed a given situation, perceived that situation to be a problem, and *disagreed* with the statement "Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them."

Figure 1. Conflict evaluations



[1] Individuals in this cell indicated that they observed a given situation, perceived that situation to be a problem, and *agreed* with the statement "Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them."

[2] Individuals in this cell indicated that they observed a given situation, perceived that situation to be a problem, and *disagreed* with the statement "Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them."

The distinction between interpersonal and social values conflict is important because of the associated management implications. Three general strategies have been recognized for dealing with conflict: (a) zoning, (b) education, and (c) adopting alternative management strategies (Graefe & Thapa, 2004; Vaske et al., 1995). When conflict stems from interpersonal interactions, zoning incompatible visitors to different locations can be effective. When the source of conflict is a difference in values, intensified education efforts are often necessary, but may not be effective in changing basic beliefs. If social values conflict at OSMP is substantial, management may need to consider either (a) eliminating off leash dogs in all areas or (b) reducing the number of trails where off leash dogs are allowed.

Study Context and Objectives

The City of Boulder OSMP Visitor Master Plan identifies conflict reduction as a key objective. One specific type of potential conflict involves the presence of dogs in areas managed by OSMP and the impact of dog behaviors on the visiting public. Dog guardians, for example, that allow their dogs to be off leash may not be in control of their animals and may be less likely to clean up after their pets. Visitors who are intolerant of the presence and / or behavior of pets in natural areas are likely to evaluate these situations as unacceptable.

In response to this situation, OSMP has initiated a Voice and Sight Dog Tag Program (VST). Under the VST program, visitors wishing to have their dogs off leash and under voice and sight control are required to have a tag visibly displayed on their dogs. To obtain a tag, a visitor must view a video describing the requirements of voice and sight control and complete a registration form. Visitors not registered in the program or who do not have a tag on their dog must keep their dog on leash while visiting OSMP and other City of Boulder properties where voice and sight control applies. One objective of the VST program is to decrease conflict involving dogs on OSMP properties.

During the summer of 2006, OSMP conducted an observational study to evaluate visitors' compliance with observable aspects of existing dog regulations, including the voice and sight ordinance. The OSMP observational study also evaluated the level of conflict involving dogs on their properties. The study described in this document complements the OSMP observational investigation by evaluating visitor perceptions of conflict with dogs off leash in the City's Open Space and Mountain Parks. The study involved an on-site survey and addressed the following issues:

1. Visitors' reported frequency of observing 11 specific dog / guardian behaviors (e.g., dogs approaching visitors uninvited, guardians not picking up after their pets).
2. The extent to which visitors perceive the presence and / or behavior of dogs to be a problem at locations managed by OSMP.
3. The type (interpersonal vs. social values) and magnitude of conflict that currently exists among OSMP visitors.

Methods

Sampling Design

Data for this project were obtained from on-site surveys (n = 951) conducted at 16 locations managed by the City of Boulder Open Space and Mountain Parks during the summer of 2006 (Table 1). Representatives from OSMP distributed the self-administered surveys. Surveys were randomly distributed during July (43%), August (49%) and early September (8%). Both

weekdays (47%) and weekends (53%) were included in the sample. Surveys were administered in the morning (44%), midday (32%) and evening (24%). Sampling occurred at trailheads that provide access to trails allowing dogs to be managed under voice and site control.

Variables Measured

The one-page survey included general questions related to: (a) frequency of visitation, (b) dog ownership, (c) activities participated in on the day the individual was interviewed, (d) demographics (sex, age, education, place of residence), and (e) beliefs about off leash dogs at OSMP.

Table 1. Survey locations

Survey locations	Number	Percent
East Boulder – Gunbarrel	53	6
East Boulder – Teller Farm	21	2
Dry Creek	79	8
Bobolink	72	8
South Boulder Creek at EBCC	31	3
Marshall Mesa	66	7
Greenbelt Plateau	12	1
Doudy Draw	18	2
South Mesa	107	11
Shanahan Ridge	52	5
Chautauqua	216	23
Sanitas	64	7
Foothills	15	2
Sage	44	5
Eagle	53	6
Gregory Canyon	48	5
Total	951	100

Questions related to perceived conflict examined 11 specific behaviors that could potentially create conflict for OSMP visitors. This list of behaviors was developed collectively from input provided by OSMP and interested citizen group representatives. For presentation purposes these items were arranged into *direct* and *indirect* human-dog interactions. The direct behaviors involved situations where dogs interacted with visitors other than their guardians. In the indirect behaviors, the dog interacted with the guardian, wildlife or other dogs, or the guardian failed to pick up after their dogs.

The direct behaviors included:

- Dogs jumping on a visitor
- Dogs pawing a visitor
- Dogs licking a visitor
- Dogs sniffing a visitor
- Dogs approaching uninvited

The indirect behaviors included:

- Owners not picking up after their dogs
- Dogs causing wildlife to flee
- Dogs flushing birds
- Owners repeatedly calling their dogs
- Dogs off trail
- Dogs “play” chasing another dog

To address issues related to perceived conflict, respondents indicated the extent to which they considered each of the 11 behaviors to be a problem at OSMP. The response categories for these questions were “not at all a problem” (0), “slight problem” (1), “moderate problem” (2), and “extreme problem” (3). For some analyses and consistent with past research (Carothers et al., 2001; Vaske et al., 1995, 2007), these variables were recoded into two categories (“no problem” or “problem”). Combining the frequency of occurrence on a typical visit (observed, not observed) variables with the corresponding perceived problem (no problem, problem) variables for each respondent produced conflict typologies with the four possible attributes: (a) no conflict, (b) interpersonal conflict, (c) social values conflict, and (d) both interpersonal and social values conflict.

Results

Descriptive Findings

Fifty-six percent of the sample was female and 44% male. Half of the respondents were between the ages of 31 to 50, with another quarter over 50. The average age was 42 years old. A third of the sample held a bachelors degree and 53% had attended some graduate school or held masters or doctoral / professional degrees. Nearly half of the sample (48%) lived within the city limits of Boulder.

A quarter of the sample had visited OSMP locations two years or less; over a third (38%) had been visiting more than 10 years. The average number of years visiting OSMP locations was 11. Forty-one individuals (4%) had been visiting for more than 30 years. About a quarter (26%) of the individuals in the sample had made between 1 and 10 visits to OSMP locations within the past 12 months. On the other extreme, 38% had made more than 90 visits during the previous year. The average number of visits per year was 92 and ranged from 1 to 365 visits. A third of the respondents had made between 1 and 3 visits during the past month. Another third had visited 4 to 10 times, and a third had made more than 10 visits in the last month. The average number of visits was 10 per month and the range was from 1 visit to more than 31 visits.

Over half (54%) of the respondents were dog guardians. Of these individuals, 71% owned one dog and another quarter owned two dogs. Over half (56%) walk their dogs two or more times per week at OSMP areas. The average number of dogs per dog walker was 1.35.

Fifty-six percent were not visiting OSMP with a dog on the day they completed the survey; about a third were visiting with one dog and about a tenth (11%) with 2 or 3 dogs. On the day the respondent was interviewed, over a quarter (28%) considered their activity to be walking a dog. More than half (57%) were walking or hiking without a dog and a fifth (21%) were runners (Note: since respondents could check more than one activity, percentages do not sum to 100.)

Perceived Problem Behavior

All behaviors were thought to be a slight to extreme problem by some portion of the sample (Table 2). The most problematic behaviors were owners not picking up after their dog, dogs causing wildlife to flee, dogs jumping on a visitor, dogs pawing a visitor and dogs flushing birds.

Across all 11 potential problem behaviors, “owners not picking up after their dogs” was considered to be an “extreme problem” by 57% of all respondents (Table 2). Almost all (91%) individuals rated this behavior as at least slightly problematic. Only 10% indicated that they had observed this behavior on the day they completed the survey.

Among the other “indirect” behaviors, “dogs causing wildlife to flee” (35%) and “dogs flushing birds” (24%) were also evaluated as extreme problems, with about three quarters indicating that

these behaviors were slightly to extremely problematic. These behaviors, however, were only observed by 3% and 2%, respectively, on the day they were interviewed.

Nearly half of the respondents rated "dogs off trail" (47%) and "dogs 'play' chasing another dog" (44%) as problematic to at least some extent. A third observed dogs off trail and nearly a fifth reported seeing dogs play chasing another dog.

Among the five "direct" human-dog interaction variables, "dogs jumping on a visitor" was considered an extreme problem by 35% of the respondents; 82% rated this behavior as at least a "slight problem." "Dogs pawing a visitor" was considered a problem (slight to extreme) by three quarters of the visitors. Both of these behaviors, however, were observed by only 3% or less of the respondents on the day the survey was completed.

Dogs approaching another visitor uninvited and dogs sniffing a visitor were seen as a problem (slight to extreme) by two thirds and half of the visitors, respectively. These two behaviors were observed by about a fifth of the respondents on the day they were surveyed.

Table 2. Perceived problems associated with human-dog interactions

	Extent of Problem *if* Behavior Occurs [1]				
For dogs off leash:	Not at all a problem %	Slight problem %	Moderate problem %	Extreme problem %	Percent Observing Behavior Today
Indirect interaction					
Owners not picking up after their dogs	9	12	22	57	10
Dogs causing wildlife to flee	23	20	22	35	3
Dogs flushing birds	28	26	22	24	2
Owners repeatedly calling their dogs	30	39	22	9	12
Dogs off trail	53	29	13	5	32
Dogs "play" chasing another dog	56	26	13	5	18
Direct interaction					
Dogs jumping on a visitor	18	22	25	35	3
Dogs pawing a visitor	24	26	26	24	2
Dogs licking a visitor	35	30	19	16	6
Dogs approaching uninvited	32	32	20	16	19
Dogs sniffing a visitor	48	29	14	9	18

1. Cell entries are row percents

Tables 3 through 5 examine the relationships between each of the potential problem behaviors and three dog guardian variables. In addition to tests of statistical significance (χ^2), we used Cramer's *V* to compare the strength of the relationships. A value of .1 on this effect size statistic can be considered a "minimal" relationship (Vaske, Gliner, & Morgan, 2002). A Cramer's *V* of .3 is considered "typical" and effect sizes of .5 or greater are "substantial" relationships.

Compared to non-dog guardians, dog guardians were slightly less likely to evaluate "owners not picking up after their dogs," dogs causing wildlife to flee," "dogs flushing birds," and "owners repeatedly calling their dogs" as problems (Table 3). Although larger percentage differences were observed between guardians and non-guardians in terms of "dogs off trail" and "dogs play chasing another dog," and there were statistical differences between the two groups, all of the relationships can be characterized as "minimal." In other words, there are differences between dog guardians and non-dog guardians for the six indirect interaction perceived problem variables, but the differences are small.

Table 3. Perceived problems associated with each behavior by dog guardians

	Dog Guardian				
	No (n = 431) (%)	Yes (n = 509) (%)	χ^2	p-value	Cramer's V
Indirect interaction					
Owners not picking up after dogs			18.53	< .001	.141
Not at all a problem	7	10			
Slight problem	10	14			
Moderate problem	19	26			
Extreme problem	64	50			
Dogs causing wildlife to flee			14.72	< .002	.126
Not at all a problem	21	24			
Slight problem	18	22			
Moderate problem	19	24			
Extreme problem	42	30			
Dogs flushing birds			37.64	< .001	.201
Not at all a problem	25	31			
Slight problem	21	29			
Moderate problem	20	24			
Extreme problem	34	16			
Owners repeatedly calling dogs			33.61	< .001	.190
Not at all a problem	25	33			
Slight problem	34	43			
Moderate problem	27	18			
Extreme problem	14	6			
Dogs off trail			66.98	< .001	.267
Not at all a problem	39	64			
Slight problem	34	24			
Moderate problem	19	8			
Extreme problem	8	3			
Dogs "play" chasing another dog			41.11	< .001	.209
Not at all a problem	46	64			
Slight problem	30	24			
Moderate problem	19	8			
Extreme problem	5	4			
Direct interaction					
Dogs jumping on a visitor			15.23	< .002	.128
Not at all a problem	15	20			
Slight problem	19	25			
Moderate problem	25	25			
Extreme problem	41	30			
Dogs pawing a visitor			19.70	< .001	.146
Not at all a problem	20	26			
Slight problem	24	28			
Moderate problem	25	27			
Extreme problem	31	19			
Dogs licking a visitor			31.26	< .001	.183
Not at all a problem	28	41			
Slight problem	29	31			
Moderate problem	22	17			
Extreme problem	21	11			
Dogs approaching uninvited			34.91	< .001	.193
Not at all a problem	27	36			
Slight problem	28	35			
Moderate problem	22	18			
Extreme problem	23	11			
Dogs sniffing a visitor			67.66	< .001	.268
Not at all a problem	37	57			
Slight problem	28	30			
Moderate problem	21	9			
Extreme problem	14	4			

Table 4. Perceived problems associated with each behavior by dog walkers at OSMP

	Do you walk your dog at OSMP areas?					
	No (n = 78) (%)	Yes (n = 431) (%)	Do Not Own a Dog (n = 431) (%)	χ^2	p-value	Cramer's V
Indirect interaction						
Owners not picking up after dogs				19.22	.004	.102
Not at all a problem	12	10	7			
Slight problem	14	14	10			
Moderate problem	22	26	19			
Extreme problem	52	50	64			
Dogs causing wildlife to flee				15.63	.016	.092
Not at all a problem	27	24	21			
Slight problem	19	23	18			
Moderate problem	26	23	19			
Extreme problem	28	30	42			
Dogs flushing birds				40.87	< .001	.147
Not at all a problem	31	31	25			
Slight problem	27	29	21			
Moderate problem	19	25	20			
Extreme problem	23	15	34			
Owners repeatedly calling dogs				39.10	< .001	.144
Not at all a problem	24	35	25			
Slight problem	42	43	34			
Moderate problem	25	16	27			
Extreme problem	9	6	14			
Dogs off trail				78.69	< .001	.203
Not at all a problem	54	66	39			
Slight problem	26	24	34			
Moderate problem	10	8	19			
Extreme problem	10	2	8			
Dogs "play" chasing another dog				55.16	< .001	.170
Not at all a problem	51	67	46			
Slight problem	23	24	30			
Moderate problem	17	6	19			
Extreme problem	9	3	5			
Direct interaction						
Dogs jumping on a visitor				16.99	.009	.096
Not at all a problem	22	20	15			
Slight problem	27	24	19			
Moderate problem	20	26	25			
Extreme problem	31	30	41			
Dogs pawing a visitor				21.26	.002	.107
Not at all a problem	27	26	20			
Slight problem	33	28	24			
Moderate problem	22	28	25			
Extreme problem	18	18	31			
Dogs licking a visitor				33.42	< .001	.133
Not at all a problem	41	41	28			
Slight problem	34	31	29			
Moderate problem	12	18	22			
Extreme problem	13	10	21			
Dogs approaching uninvited				39.46	< .001	.144
Not at all a problem	28	38	27			
Slight problem	36	35	28			
Moderate problem	19	17	22			
Extreme problem	17	10	23			
Dogs sniffing a visitor				70.88	< .001	.192
Not at all a problem	57	57	37			
Slight problem	29	30	28			
Moderate problem	6	10	21			
Extreme problem	8	3	14			

Table 5. Perceived problems associated with each behavior by frequency of walking dogs at OSMP

	Frequency of Walking Dogs at OSMP					
	Never (n = 78) (%)	1 to 4 Visits per Month (n = 146) (%)	2+ Visits per Week (n = 285) (%)	χ^2	p-value	Cramer's V
Indirect interaction						
Owners not picking up after dogs				1.94	.925	.044
Not at all a problem	12	11	10			
Slight problem	14	16	13			
Moderate problem	22	24	27			
Extreme problem	52	49	50			
Dogs causing wildlife to flee				7.08	.314	.083
Not at all a problem	27	29	21			
Slight problem	19	21	24			
Moderate problem	26	18	26			
Extreme problem	28	32	29			
Dogs flushing birds				3.94	.684	.064
Not at all a problem	31	32	30			
Slight problem	27	30	29			
Moderate problem	19	22	26			
Extreme problem	23	16	15			
Owners repeatedly calling dogs				7.05	.316	.084
Not at all a problem	24	31	37			
Slight problem	43	47	41			
Moderate problem	24	16	16			
Extreme problem	9	6	6			
Dogs off trail				25.55	< .001	.168
Not at all a problem	54	55	72			
Slight problem	26	32	20			
Moderate problem	10	10	6			
Extreme problem	10	3	2			
Dogs "play" chasing another dog				15.87	.014	.135
Not at all a problem	51	63	69			
Slight problem	23	25	23			
Moderate problem	17	8	6			
Extreme problem	9	4	2			
Direct Interaction						
Dogs jumping on a visitor				3.35	.764	.057
Not at all a problem	22	23	19			
Slight problem	27	25	23			
Moderate problem	20	25	27			
Extreme problem	31	27	31			
Dogs pawing a visitor						
Not at all a problem	27	26	25	2.10	.910	.045
Slight problem	33	29	27			
Moderate problem	22	27	29			
Extreme problem	18	18	19			
Dogs licking a visitor				4.59	.597	.066
Not at all a problem	41	40	41			
Slight problem	34	33	30			
Moderate problem	12	20	17			
Extreme problem	13	7	12			
Dogs approaching uninvited				7.50	.277	.087
Not at all a problem	28	40	37			
Slight problem	36	32	37			
Moderate problem	19	15	18			
Extreme problem	17	12	8			
Dogs sniffing a visitor				9.38	.153	.096
Not at all a problem	57	56	57			
Slight problem	29	31	30			
Moderate problem	6	7	11			
Extreme problem	8	6	2			

For the direct interaction perceived problem variables in Table 3, more of the non-dog guardians felt each of the behaviors was a moderate to extreme problem than the dog guardians, and there were statistical differences between the two groups. However, similar to the indirect interaction variables, the strength of these differences was generally minimal.

In general, the evaluations given by dog guardians who do not walk their dogs at OSMP were similar to those who do walk their dogs at OSMP (Table 4). Once again, the effect size was "minimal" (i.e., Cramer's $V \leq .203$).

Among the dog guardians (Table 5), the frequency of walking their dogs at OSMP did not statistically influence their evaluations of problem behaviors. The one exception to this pattern was "dogs off trail" where 8% of the respondents who visited 2+ times per week rated the behavior as a moderated or extreme problem, compared to 13% of those who walk their dogs 1 to 4 times per month, and 20% of those who never visit with their dogs. Although these distributions were statistically different, the effect size was .168 (i.e., a minimal relationship).

Beliefs about Off Leash Dogs

Consistent with perceived problem measures, 91% of the respondents agreed with the statement "It bothers me when dog owners do not pick up after their dogs" (Table 6). Over three-quarters agreed that "Dog owners who *cannot* control their dogs off leash *should not* be allowed to visit OSMP areas with their dogs off leash" and that "It is OK for a visitor to say something to a dog owner who does *not* have his or her dog under control." Seventy-five percent, however, felt that "Most dog owners are responsible individuals who keep their dogs under control at OSMP areas." Over three quarters disagreed that "Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them" and over half enjoyed watching dogs off leash at OSMP areas."

Table 6. Beliefs about off leash dogs [1]

	Disagree	Neutral	Agree
Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them	78	13	9
The behavior of off leash dogs is a problem at OSMP areas	60	20	20
I do ***not*** think that there are any real impacts from off leash dogs at OSMP areas	42	25	33
I enjoy watching dogs off leash at OSMP areas	17	25	58
It's OK that off leash dogs use OSMP areas as long as they do ***not*** affect me	17	20	63
Most dog owners are responsible individuals who keep their dogs under control at OSMP areas	9	16	75
Dog owners who ***cannot*** control their dogs off leash ***should not*** be allowed to visit OSMP areas with their dogs off leash	10	13	77
It is OK for a visitor to say something to a dog owner who does ***not*** have his or her dog under control	6	16	78
It bothers me when dog owners do ***not*** pick up after their dogs	2	7	91

1. Cell entries are row percents

Perceived Conflict

Consistent with past research (Vaske et al., 2007), perceived conflict was initially operationalized by combining the frequency of observing (observed vs. not observed) each of the 11 human-dog interaction variables on a typical visit with the corresponding perceived problem (no problem, problem) variables. This first step produced 11 conflict variables with three possible attributes (i.e., no conflict, interpersonal conflict, social values conflict). Step two further differentiated individuals in the interpersonal conflict category according to their responses to "Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them." Individuals who *disagreed* with this statement were considered to have experienced only interpersonal conflict. Respondents who *agreed* with the belief statement were judged to have experienced both interpersonal and social values conflict. This additional classification produced four options for each of the 11 human-dog interaction variables (i.e., no conflict, interpersonal conflict, social values conflict, and both interpersonal and social values conflict).

Among the indirect interaction variables, 50% of the respondents reported interpersonal conflict for "owners not picking up after their dogs" (Table 7). In other words, these individuals observed this behavior and judged the behavior to be a problem. Thirty-five percent did not observe this behavior but considered it to be a problem (i.e., social values conflict). Only 8% reported no conflict with owners not picking up after their dogs, and 7% were in the combined "interpersonal and social values" conflict category. For "dogs causing wildlife to flee" and "dogs flushing birds," the modal response category was social values conflict (54% and 55%, respectively). The most frequent response for "owners repeatedly calling their dogs" was interpersonal conflict (46%). "Dogs off trails" and "dogs 'play' chasing with another dog" were generally considered "no conflict" (47% and 55%, respectively).

Among the direct interaction variables (Table 7), social values conflict was the modal response for "dogs jumping on a visitor" (48%), "dogs pawing a visitor" (56%), and "dogs licking a visitor" (39%). In other words, these respondents were not observing these behaviors, but considered them problems if they were to occur. No conflict was the modal category for "dogs sniffing a visitor" (48%) and about one-third (31%) were in the interpersonal conflict category for this variable.

Table 7. Perceived conflicts associated with human-dog interactions

	Respondents	
	Number	Percent
Indirect interactions		
Owners not picking up after their dogs		
No conflict	63	8
Interpersonal conflict	422	50
Social values conflict	290	35
Interpersonal & social values	63	7
Dogs causing wildlife to flee		
No conflict	181	22
Interpersonal conflict	170	20
Social values conflict	448	54
Interpersonal & social values	37	4
Dogs flushing birds		
No conflict	218	26
Interpersonal conflict	126	15
Social values conflict	455	55
Interpersonal & social values	28	4
Owners repeatedly calling their dogs		
No conflict	235	28
Interpersonal conflict	392	46
Social values conflict	157	19
Interpersonal & social values	59	7
Dogs off trail		
No conflict	442	47
Interpersonal conflict	290	30
Social values conflict	59	6
Interpersonal & social values	66	7
Dogs “play” chasing another dog		
No conflict	462	55
Interpersonal conflict	211	25
Social values conflict	116	14
Interpersonal & social values	49	6
Direct interactions		
Dogs jumping on a visitor		
No conflict	135	16
Interpersonal conflict	254	31
Social values conflict	402	48
Interpersonal & social values	45	5
Dogs pawing a visitor		
No conflict	183	22
Interpersonal conflict	152	18
Social values conflict	462	56
Interpersonal & social values	35	4
Dogs licking a visitor		
No conflict	282	34
Interpersonal conflict	180	22
Social values conflict	322	39
Interpersonal & social values	41	5
Dogs approaching uninvited		
No conflict	258	31
Interpersonal conflict	389	46
Social values conflict	127	15
Interpersonal & social values	64	8
Dogs sniffing a visitor		
No conflict	395	48
Interpersonal conflict	258	31
Social values conflict	126	15
Interpersonal & social values	48	6

Visitor Clusters: Perceived Conflict

Cluster analyses were performed on the 11 human-dog conflict variables (Table 8). A series of cluster analyses ranging from 2 to 4 group solutions were conducted. A 3-group solution provided the best fit for the data. To validate this solution, we randomly sorted the data and conducted a cluster analysis after each of 3 random sorts. These additional analyses supported the solution identifying three distinct groups of individuals.

Cluster 1 (27% of respondents) generally reflected a "no conflict" segment (9 of the 11 variables). These individuals had not observed the behaviors and did not consider the behaviors to be a problem.

Individuals in the second cluster (14%) consistently expressed a "social values conflict." These individuals had not observed the behaviors, but thought that the behaviors would be a problem if they were to occur.

Cluster 3 (59% of respondents) reflected a combination of interpersonal and social values conflict. Two of the indirect behaviors (dogs causing wildlife to flee, dogs flushing birds) and two of the direct behaviors (dogs jumping on visitors, dogs pawing visitors) represented a conflict in social values. The remaining seven variables in this cluster of individuals were interpersonal conflicts. In other words, these respondents had observed the behavior and considered the behavior to be a problem.

Table 8. Visitor clusters: Perceived conflict

	Cluster 1 No Conflict	Cluster 2 Social Values Conflict	Cluster 3 Both Interpersonal and Social Values Conflict
Indirect interaction			
Owners not picking up after their dogs	Interpersonal	Social Values	Interpersonal
Dogs causing wildlife to flee	No Conflict	Social Values	Social Values
Dogs flushing birds	No Conflict	Social Values	Social Values
Owners repeatedly calling their dogs	No Conflict	Social Values	Interpersonal
Dogs off trail	No Conflict	Social Values	Interpersonal
Dogs "play" chasing another dog	No Conflict	Social Values	Interpersonal
Direct interaction			
Dogs jumping on a visitor	Interpersonal	Social Values	Social Values
Dogs pawing a visitor	No Conflict	Social Values	Social Values
Dogs licking a visitor	No Conflict	Social Values	Interpersonal
Dogs approaching uninvited	No Conflict	Social Values	Interpersonal
Dogs sniffing a visitor	No Conflict	Social Values	Interpersonal
Percent of sample	27%	14%	59%

Understanding this 3-group solution is facilitated by Table 9. For example, a majority of individuals in cluster 1 checked no conflict for 10 of the 11 variables. The modal response for cluster 2 involved some form of social values conflict (either as the sole source or in combination with interpersonal). Respondents in cluster 3 (interpersonal and social values conflict) typically expressed more conflict across all 11 items than those in the other two clusters.

Table 9. Perceived conflict by conflict clusters

	Type of Conflict [1]					
	No Conflict	Social Values Conflict	Interpersonal Social Values Conflict	χ^2	*p*-value	Cramer's *V*
Indirect interaction						
Owners not picking up after their dogs				412.42	< .001	.566
No conflict	25	0	2			
Interpersonal conflict	52	6	60			
Social values conflict	23	41	38			
Interpersonal & social values	0	53	0			
Dogs causing wildlife to flee				584.80	< .001	.636
No conflict	71	3	4			
Interpersonal conflict	17	0	26			
Social values conflict	12	66	69			
Interpersonal & social values	0	31	1			
Dogs flushing birds				557.77	< .001	.608
No conflict	80	7	7			
Interpersonal conflict	10	0	21			
Social values conflict	10	70	71			
Interpersonal & social values	0	23	1			
Owners repeatedly calling their dogs				483.16	< .001	.596
No conflict	61	3	19			
Interpersonal conflict	34	6	61			
Social values conflict	5	41	20			
Interpersonal & social values	0	50	1			
Dogs off trail				413.49	< .001	.568
No conflict	79	9	48			
Interpersonal conflict	20	15	45			
Social values conflict	1	20	7			
Interpersonal & social values	0	56	1			
Dogs "play" chasing another dog				418.25	< .001	.561
No conflict	85	13	51			
Interpersonal conflict	12	4	36			
Social values conflict	3	39	13			
Interpersonal & social values	0	44	0			
Direct interaction						
Dogs jumping on a visitor				616.96	< .001	.652
No conflict	57	1	2			
Interpersonal conflict	29	0	38			
Social values conflict	14	59	60			
Interpersonal & social values	0	40	0			
Dogs pawing a visitor				607.77	< .001	.674
No conflict	72	2	5			
Interpersonal conflict	15	0	24			
Social values conflict	13	67	71			
Interpersonal & social values	0	31	0			
Dogs licking a visitor				535.83	< .001	.597
No conflict	81	4	21			
Interpersonal conflict	13	0	30			
Social values conflict	6	60	49			
Interpersonal & social values	0	36	0			
Dogs approaching uninvited				498.23	< .001	.610
No conflict	61	2	24			
Interpersonal conflict	33	5	62			
Social values conflict	6	37	14			
Interpersonal & social values	0	56	0			
Dogs sniffing a visitor				465.66	< .001	.582
No conflict	84	7	41			
Interpersonal conflict	14	6	44			
Social values conflict	2	44	15			
Interpersonal & social values	0	43	0			

1. Cell entries are column percents

Respondents' sex was related to the type of conflict that visitors experienced (Table 10). More males were in the "no conflict" (30%) and "social values" conflict (15%) clusters than females (24% and 12%, respectively). More females were in the interpersonal and social values conflict cluster (64%) than males (55%). The strength of the relationship, however, was only minimal (Cramer's $V = .089$).

Similarly, there was a weak statistical relationship between age and conflict cluster membership. Individuals in the social values conflict cluster were slightly older ($M = 45.69$) than those in the other two clusters ($M = 41.07$ and 41.59). In general, individuals with more formal education were more likely to report some form of conflict than those with less formal education. There was no statistical relationship between either place of residence variable and cluster membership.

Table 10. Demographics by conflict clusters

	Type of Conflict [1]					
	No Conflict	Social Values Conflict	Interpersonal & Social Values Conflict	χ^2	*p*-value	Cramer's *V*
Sex				6.50	.039	.089
Male	30	15	55			
Female	24	12	64			
Age				23.15	.026	.118
< 20	32	10	58			
21 to 30	26	13	61			
31 to 40	33	6	61			
41 to 50	22	15	63			
51 to 60	24	18	58			
61 to 70	26	24	50			
> 70	27	27	46			
Mean age	41.07	45.69	41.59			
Education				18.60	.046	.108
High school or less	43	8	49			
Some college	35	8	57			
College graduate	28	15	57			
Some graduate school	28	11	61			
Masters degree	21	13	66			
Doctoral / professional degree	21	20	59			
Place of Residence				.038	.981	.007
Within Boulder city limits	26	14	60			
Outside city limits	27	13	60			
				.419	.981	.016
Within Boulder city limits	26	14	60			
Within Boulder County	28	14	58			
Outside Boulder County	26	13	61			

1. Cell entries are row percentages

When analyzed as a crosstabulation, each of the frequency of visitation variables (number of years visiting OSMP, number of visits during the past 12 months, number of visits during past month) was related to type of conflict (Table 11). When the visitation indicators were treated as continuous variables in an Analysis of Variance, however, only number of visits during the past 12 months and number of visits during the past month were statistically significant. In these later analyses, individuals expressing social values conflict visited less frequently than those in the other two clusters.

Table 11. Frequency of visitation by conflict clusters

	Type of Conflict [1]					
	No Conflict	Social Values Conflict	Interpersonal & Social Values Conflict	χ^2 or *F*-value	*p* value	Cramer's *V* or eta
Number of years visiting OSMP				26.03	.011	.128
1st year	31	25	44			
1 to 2 years	24	15	61			
3 to 5 years	32	10	58			
6 to 10 years	29	8	63			
11 to 20 years	26	13	61			
21 to 30 years	20	12	68			
More than 30 years	21	28	51			
Mean	10.14	12.14	11.15	1.48	.229	.059
Number of visits during past 12 months				19.56	.012	.106
1 to 10 visits	28	20	52			
11 to 30 visits	25	15	60			
31 to 90 visits	22	12	66			
91 to 180 visits	29	9	62			
181 to 365 visits	31	9	60			
Mean	104.01 [a]	63.34 [b]	97.27 [a]	6.04	.002	.117
Number of times visited OSMP during past month				26.20	.010	.124
1 visit	27	23	50			
2 to 3 visits	19	18	63			
4 to 5 visits	28	12	60			
6 to 10 visits	28	9	63			
11 to 20 visits	26	12	62			
21 to 31 visits	35	8	57			
More than 31 visits	44	6	50			
Mean	11.95 [a]	7.79 [b]	10.27 [c]	6.75	.001	.124

1. Cell entries are row percentages

All four of the dog guardian variables were statistically related to type of conflict (Table 12). Current dog guardians expressed less conflict than non-guardians. Non-dog guardians were more likely to express social values conflict. A majority of both groups, however, were in the interpersonal and social values cluster. The effect size for this relationship approached "typical."

As the number of dogs owned and the number of dogs with the individual on the day they were interviewed increased, membership in the no conflict cluster also increased. The Cramer's *V* for these relationships, however were only .118 and .186, respectively.

Visitors who never walk their dog at OSMP locations were more likely to report social values conflict than those who walk their dogs at OSMP. About a third of all three groups (never, 1 to 4 visits per month, 2+ visits per week) were in the no conflict cluster. Roughly two-thirds of respondents in these latter two groups were in the interpersonal and social values conflict cluster (Cramer's $V = .174$).

Table 12. Dog guardian indicators by conflict clusters

	Type of Conflict [1]					
	No Conflict	Social Values Conflict	Interpersonal & Social Values Conflict	χ^2	*p*-value	Cramer's *V*
Are you currently a dog guardian?				62.59	< .001	.263
No	22	23	55			
Yes	31	6	63			
Number of dogs currently owned				11.19	.025	.118
1	30	5	65			
2	29	5	66			
3+	50	18	32			
Number of dogs with you on today's visit				64.90	< .001	.186
No dogs	23	21	56			
1 dog	31	3	66			
2+ dogs	38	5	57			
Frequency of walking dogs at OSMP				23.33	< .001	.174
Never	31	18	51			
1 to 4 visits per month	30	6	64			
2+ visits per week	31	2	67			

1. Cell entries are row percentages

Four of the six activity participation variables were statistically related to conflict cluster membership. Findings for walking a dog on the day the person completed the survey (Table 13) paralleled the results for walking a dog in general at OSMP locations (Table 12). People who were walking / hiking, bird watching, or wildlife viewing were more likely to be in the social values conflict cluster than those who were not participating in these activities. There was no relationship between participation in running or bicycling and cluster membership. All of the Cramer *V*'s were minimal.

Table 13. Activities by conflict clusters

	Type of Conflict [1]					
	No Conflict	Social Values Conflict	Interpersonal & Social Values Conflict	χ^2	*p*-value	Cramer's *V*
Walking Dog				51.91	< .001	.214
No	25	18	57			
Yes	33	2	65			
Walking / Hiking				18.20	< .001	.142
No	31	8	61			
Yes	24	18	58			
Running				4.50	.105	.069
No	27	15	58			
Yes	28	9	63			
Bicycling				.035	.983	.006
No	27	13	60			
Yes	26	14	60			
Bird Watching				6.67	.036	.088
No	28	13	59			
Yes	16	22	62			
Wildlife Viewing				14.08	.001	.125
No	28	13	59			
Yes	11	25	64			

1. Cell entries are row percentages

Eight of the nine beliefs about off leash dogs were statistically related to conflict cluster membership (Table 14). The one exception was "It is OK for a visitor to say something to a dog owner who does *not* have his or her dog under control."

Given that the statement "Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them" was used in the construction of the conflict clusters, it was not surprising that this variable was "substantially" related to cluster type (Cramer's V = .540)

Over a third of the individuals who agreed with "The behavior of off leash dogs is a problem at OSMP areas" were in the social values conflict cluster, compared to 20% of those who were neutral and 3% who disagreed with this statement. Over half of the people who disagreed with the statement "I enjoy watching dogs off leash at OSMP areas" were in the social values conflict cluster, compared to 11% who were neutral and only 3% who agreed with the statement.

Consistent with the overall percentages for the conflict clusters (59% – mixed interpersonal and social values, 14% – only social values, 27% – no conflict), the modal responses on the belief statements (Table 14) were generally in the interpersonal and social values cluster. Taken together, these findings provide a measure of validation for the cluster groups.

Table 14. Beliefs about off leash dogs by conflict clusters

	Type of Conflict [1]					
	No Conflict	Social Values Conflict	Interpersonal & Social Values Conflict	χ^2	*p*-value	Cramer's *V*
Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them				322.25	< .001	.540
Disagree	30	5	65			
Neutral	25	9	66			
Agree	1	95	4			
The behavior of off leash dogs is a problem at OSMP areas				148.40	< .001	.301
Disagree	34	3	63			
Neutral	21	20	59			
Agree	10	37	53			
I do ***not*** think that there are any real impacts from off leash dogs at OSMP areas				52.69	< .001	.172
Disagree	19	21	60			
Neutral	27	13	60			
Agree	36	4	60			
I enjoy watching dogs off leash at OSMP areas				207.06	< .001	.383
Disagree	6	52	42			
Neutral	25	11	64			
Agree	34	3	63			
It's OK that off leash dogs use OSMP areas as long as they do ***not*** affect me				134.74	< .001	.318
Disagree	9	47	44			
Neutral	29	10	61			
Agree	31	6	63			
Most dog owners are responsible individuals who keep their dogs under control at OSMP areas				49.37	< .001	.190
Disagree	15	39	46			
Neutral	20	20	60			
Agree	29	9	62			
Dog owners who ***cannot*** control their dogs off leash ***should not*** be allowed to visit OSMP areas with their dogs off leash				25.22	< .001	.123
Disagree	38	8	54			
Neutral	40	6	54			
Agree	23	16	61			
It is OK for a visitor to say something to a dog owner who does ***not*** have his or her dog under control				2.76	.599	.040
Disagree	31	11	58			
Neutral	30	10	60			
Agree	26	14	60			
It bothers me when dog owners do ***not*** pick up after their dogs				9.90	.042	.070
Disagree	37	0	63			
Neutral	39	9	52			
Agree	26	14	60			

1. Cell entries are row percentages

Discussion

Summary of Findings

This study sought to describe the extent to which OSMP visitors evaluated six indirect and five direct human-dog interaction variables as problems. All behaviors were thought to be a "slight" to "extreme" problem. The most problematic behaviors were owners not picking up after their dog, dogs causing wildlife to flee, dogs jumping on a visitor, dogs pawing a visitor and dogs flushing birds. Although some statistical differences existed between (a) dog guardians versus non-dog guardians, (b) individuals who walk their dogs at OSMP versus those who do not, and (c) frequency of dog walking at OSMP, the magnitude of these differences was small.

Following previous research (Vaske et al., 2007), we operationalized perceived conflict for each of 11 human-dog interaction variables as: (a) no conflict, (b) interpersonal conflict, (c) social values conflict, and (d) both interpersonal and social values conflict. Cluster analyses on the 11 interaction variables suggested that a 3-group solution best described the data. Cluster 1 (27% of respondents) generally reflected a "no conflict" segment (9 of the 11 variables). These individuals had not seen any of the human-dog behaviors and judged the behaviors as "not at all a problem."

Individuals in the second cluster (14%) consistently expressed a "social values conflict." These individuals had not observed the behaviors, but thought that the behaviors would be a problem if they were to occur. Cluster 3 (59% of respondents) reflected a combination of interpersonal and social values conflict. Two of the indirect behaviors (dogs causing wildlife to flee, dogs flushing birds) and two of the direct behaviors (dogs jumping on visitors, dogs pawing visitors) represented a conflict in social values. The remaining seven variables in this cluster of individuals were interpersonal conflicts. In other words, these respondents had observed the behavior and considered the behavior to be a problem.

Although some demographic and participation variables were statistically related to membership in the three clusters, the strength of all these relationships was minimal. Eight of the nine belief statements regarding off leash dogs were statistically related to conflict cluster membership and the effect sizes were generally larger.

Implications for OSMP

The City of Boulder Open Space and Mountain Parks implemented a Voice and Sight Tag (VST) Program in 2006. This program requires guardians to watch a video about voice and sight control, register with OSMP, and display a voice and sight tag on off leash dogs at selected areas managed by OSMP. Given that nearly three-quarters (73%) of respondents experienced some form of conflict (14% – social values conflict; 59% – interpersonal and social values conflict) with off leash dogs or their owners at the OSMP locations studied in this report, the VST program represents a necessary first step in reducing conflicts created by human-dog interactions.

Because the VST program is new, some of the conflict reported here may be lessened as more visitors understand the objectives of the program and adhere to the legal mandate. In our opinion, however, the current VST rules and regulations may not be sufficient to eliminate human-dog conflict. For example, to participate in the program, visitors must view a video and agree to control their off leash dogs in a manner described in the video. Voice and sight control, however, is a subjective issue. What constitutes control by one visitor may not reflect control by another. Not included in the registration process is a behavioral component where individuals

demonstrate that their dogs are under voice and sight control. Similar to obtaining a driver's license where the person must pass both a written exam and a driving exam, one recommendation would require individuals to not only watch the video, but also pass a written test and a physical demonstration of their ability to control their dogs. Before moving to this extreme, however, the VST program should be periodically monitored to determine whether conflict is being reduced.

Some of the conflict noted in this report reflected purely social values conflict (14%). Social values conflict occurs when visitors do not observe a given set of behaviors, but believe that such behaviors are problematic. Resolving this type of conflict will require continuing the education effort for dog guardians (e.g., the video associated with the VST program). Additional education efforts designed to inform the non-dog guardians about the VST program and its goals and objectives should also be implemented.

If these education efforts are not effective in eliminating conflict, a change in management direction may be necessary. In 2006, for example, the management percentages for 130 miles of trail were: (a) 70% voice and sight, (b) 20% leash, (c) 6% voice in sight in trail corridor, (d) 3% leash seasonally, and (e) 1% no dogs. These percentages may need to be adjusted to reduce conflict.

The majority of conflict (59%) represented a mixture of social values and interpersonal conflict. Interpersonal conflict occurs when the behavior is observed and judged as unacceptable. Formal education programs and formal sanctions (e.g., fines, loss of voice and sight privileges) may not be sufficient for resolving these interpersonal conflict issues. Part of the responsibility needs to be shouldered by OSMP visitors. As reported here, 78% of the respondents believed that "it is OK for a visitor to say something to a dog owner who does not have his or her dog under control." Agency encouragement of such informal sanctions, when combined with the formal sanctions, may promote a higher quality experience for all visitors.

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Visitor Tolerances and Standards for Off Leash Dogs at Boulder Open Space and Mountain Parks

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Executive Summary

- This study evaluated visitors' normative tolerances for 11 off leash dog behaviors identified and collectively agreed upon by the City of Boulder Open Space and Mountain Parks (OSMP) and citizen interest groups as potentially causing conflict.

- Data for this project were obtained from on-site surveys (n = 951) conducted at 16 OSMP locations during the summer of 2006. Sampling occurred at trailheads that provide access to trails allowing dogs to be managed under voice and site control.

- Questions related to normative tolerances examined 5 *direct* (e.g., dogs jumping on visitors) and 6 *indirect* (e.g., dogs causing wildlife to flee) human-dog interactions. The direct behaviors were situations where dogs interacted with visitors other than their guardians. In the indirect behaviors, the dog interacted with the guardian, wildlife, other dogs, or the guardian failed to pick up after their dogs.

- *Summary of Key Findings*

  1. Nine of the 11 indicators reflected "no tolerance" norms. The average acceptability ratings for these behaviors were negative irrespective of the number of times the behaviors were observed. Thus, *the visitors' reported standard for each of these nine behaviors was 0.*
  2. For "dogs play chasing" and "dogs off trail," a single tolerance norm was observed with acceptability ratings only slightly above neutral (i.e., the average acceptability ratings were +0.48 for "dogs off trail" and +0.51 for "dogs play chasing with another dog"). *Given that the averages were less than 1, the visitors' standard for these two behaviors was in essence 0.*
  3. Although statistical differences between some sub-groups (e.g., guardians vs. non-guardians, frequency of walking dogs at OSMP) were identified in our analyses, the magnitude of these differences was minimal. The "no tolerance" standards for the entire sample are thus applicable to all stakeholders.
  4. These standards were exceeded 13% of the time or more. The most serious violation of a standard occurred for "owners not picking up after their dogs," which was exceeded 50% of the time. The standard for "dogs approaching uninvited" was exceeded 35% of the time.

- *Recommendations*

  1. Given the visitors' "no tolerance" standards, a management standard of "no more than 0% of the visitors should have their norms exceeded" for any of these human-dog interaction variables could be recommended. A good standard, however, should be attainable, and a standard of 0% is unrealistic short of eliminating all off leash dogs at OSMP.
  2. We recommend a standard of "no more than 10% of visitors should have their norms exceeded." This recommendation is consistent with the standards currently in the OSMP Visitor Master Plan.
  3. Although the proposed standard of 10% is never met under current conditions, OSMP's Voice and Sight Tag (VST) Program had just been implemented at the time our data were collected. The VST program should be monitored to evaluate its effectiveness in reducing dog-related conflict.

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Introduction

Most natural resource planning frameworks (e.g., Limits of Acceptable Change, Visitor Impact Management, Visitor Experience and Resource Protection) argue that resource management decisions require both descriptive and evaluative information (Graefe, Kuss, & Vaske, 1990; Shelby & Heberlein, 1986; Stankey, Cole, Lucas, Petersen, & Frissell, 1985). Descriptive information is needed to demonstrate how different management actions produce different ecological and social impacts. Evaluative information is necessary to identify management goals and objectives, and to develop specific standards that define high quality. Although management decisions require both kinds of information, the evaluative component is generally the most difficult and controversial part of the decision-making process (Vaske, Shelby, Graefe, & Heberlein, 1986).

The City of Boulder Open Space and Mountain Parks (OSMP) Visitor Master Plan establishes procedures for collecting descriptive information and sets standards for several key services that enhance visitor experiences and protect the natural areas. Success in providing these community services is defined as making meaningful progress toward a sustainable and high quality visitor experience.

The Visitor Master Plan describes seven community initiatives that deliver services to OSMP visitors and the community through a package of strategies. Performance measures enable OSMP to assess progress toward implementing those strategies and meeting the Visitor Master Plan goals and objectives. The Visitor Master Plan initiatives are:

1. Education and outreach
2. Safety and enforcement
3. Recreational opportunities
4. Trails and facilities
5. Resource protection
6. User conflict reduction
7. Public involvement

This report primarily focuses on the user conflict reduction initiative. One specific type of potential conflict involves the presence of dogs in the City of Boulder Open Space and Mountain Parks and the impact of dog behaviors on the visiting public. Dog guardians, for example, that allow their dogs to be off leash may not be in control of their animals and may be less likely to clean up after their pets. Visitors who are intolerant of the presence and / or behavior of pets in natural areas are likely to evaluate these situations as unacceptable.

In response to this situation, OSMP has initiated a Voice and Sight Dog Tag Program (VST). Under the VST program, visitors wishing to have their dogs off leash and under voice and sight control are required to have a tag visibly displayed on their dogs. To obtain a tag, a visitor must view a video describing the requirements of voice and sight control and complete a registration form. Visitors not registered in the program or who do not have a tag on their dog must keep their dog on leash while visiting OSMP and other City of Boulder properties where voice and sight control applies.

Study Objectives

During the summer of 2006, OSMP conducted an observational study to evaluate visitors' compliance with observable aspects of existing dog regulations, including the voice and sight ordinance. The study described in this document complements the OSMP observational investigation by evaluating visitor tolerances for the impacts of dogs in Open Space and Mountain Parks. Our overall study objective was to evaluate visitor tolerances for 11 behaviors identified by OSMP and citizen interest groups as causing potential conflict. More specifically, we addressed the following issues:

1. Visitors' reported frequency of observing 11 dog / guardian behaviors (e.g., dogs approaching visitors uninvited, guardians not picking up after their pets).
2. Visitors' normative acceptability ratings and tolerances for these dog / guardian behaviors.
3. The extent to which visitors perceive the presence and / or behavior of dogs to be a problem at locations managed by OSMP.
4. Visitor beliefs about off leash dogs at OSMP.

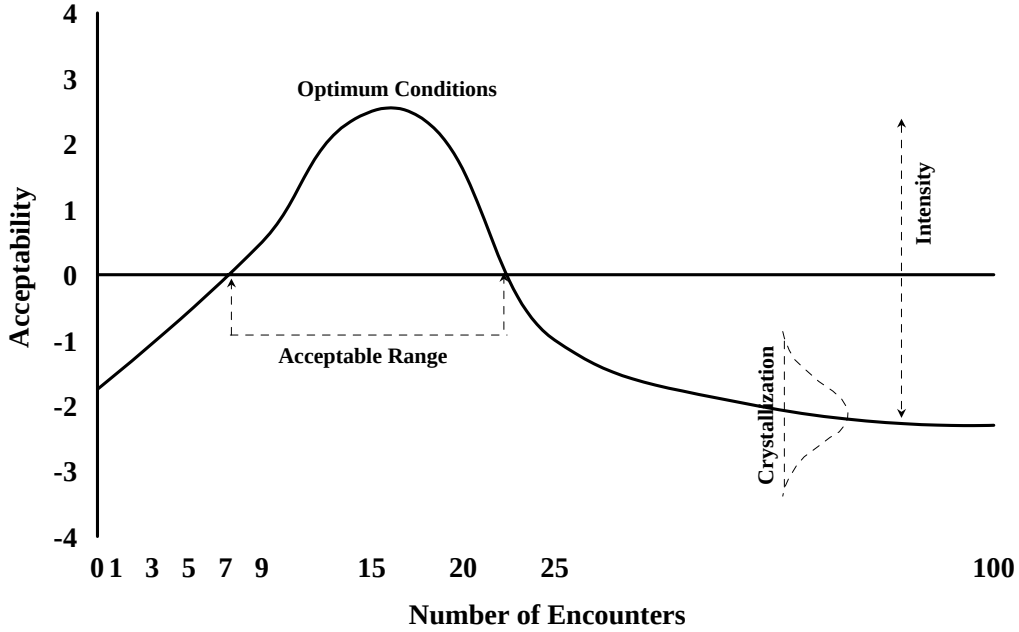
Theoretical and Methodological Contexts

Structural Characteristics of Norms

Given the need for evaluative information, a normative model has been developed as a useful way to conceptualize, collect, and organize evaluative judgments in resource management. Norms can refer to what most people are doing (a descriptive norm) or to what people *should* or *ought to* do (an injunctive norm) in a given situation (Cialdini, Kallgren, & Reno, 1991). As defined by one research tradition, norms are standards that people use to evaluate behavior or the conditions created by behavior as acceptable or unacceptable (see Shelby et al. 1996; Vaske et al. 1986 for reviews). Norms thus define what behavior or conditions should be, and can apply to individuals, collective behavior, or management actions designed to constrain collective behavior.

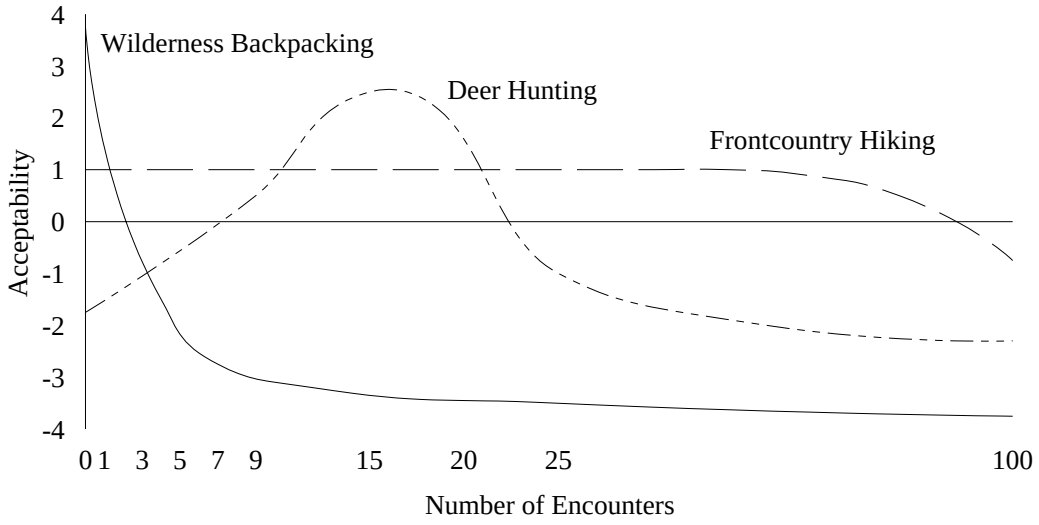
The traditional norm model focuses on the characteristics of social norms using a graphic device that Jackson (1965) initially described as the return potential model (now more generally known as impact acceptability curves). Impacts are displayed on a horizontal axis while evaluation (e.g., acceptability) is displayed on the vertical axis (Figure 1). The curves describe social norms as averages of personal norms.

Figure 1. The structural characteristics of norms



The curve can be analyzed for various structural characteristics. The high point of the curve shows the *optimum* or best situation. The range of impacts where evaluations are above the neutral line defines the *range of tolerable conditions*. The height of the curve (both above and below the neutral line) describes the *intensity* of the norm (one measure of strength), while variation among evaluations at each impact level shows the amount of agreement or *crystallization* (a second measure of strength). Evaluative standards for backpacking in a wilderness setting (Figure 2), for example, often have an optimum of zero encounters, a low range of tolerable contacts, high intensity, and high crystallization. Norms for hiking in a developed recreation area tend to show a greater tolerable range, lower intensity, and less agreement (Shelby et al., 1996). For deer hunting, too few and too many people can be evaluated negatively; hunters want enough people to move deer, but not so many that crowding or competition problems appear.

Figure 2. Hypothetical norm curves for three activities



Jackson's model has been extensively applied to natural resource applications; often with respect to encounter norms that describe how many people are too many in a recreation setting (see Donnelly, Vaske, Whittaker, & Shelby, 2000; Manning, Lawson, Newman, Laven, & Valliere, 2002; Shelby et al., 1996; Vaske & Donnelly, 2002, for reviews). Other applications have extended the structural approach to other impact issues such as campsite or attraction site sharing (Heberlein & Dunwiddie, 1979; Shelby, 1981); the number of people in sight at attraction areas (Manning, Lime, Freimund, & Pitt, 1996); fishing competition (Martinson & Shelby, 1992; Whittaker & Shelby, 1993); discourteous behavior incidents (Whittaker & Shelby, 1988; 1993; Whittaker, Vaske, & Williams, 2000); capacities on wildlife viewing platforms (Whittaker, 1997); or other resource issues such as instream flow requirements for different river recreation activities (Whittaker & Shelby, 2002); the amount of bare ground and size of fire rings in campgrounds (Shelby, Vaske, & Harris, 1988); and the acceptability of wildlife management practices (Wittmann, Vaske, Manfredo, & Zinn, 1998; Zinn, Manfredo, Vaske, & Wittmann, 1998) and wildfire policies (Kneeshaw, Vaske, Bright, & Absher, 2004). In all of these applications, researchers have explored either acceptable behaviors or acceptable conditions caused by behavior (Vaske, Donnelly, & Whittaker, 2000).

For many of the behaviors / conditions examined in past research, “less” impact is often deemed more acceptable than “more.” Encountering no other visitors in a wilderness (or at a campsite or attraction site), for example, is consistently evaluated more positively than seeing many visitors. Other research (e.g., Whittaker & Shelby, 1988), however, suggests that “no tolerance” norms may exist when visitors agree that any level of impact is unacceptable. A “single tolerance” norm exists when visitors show similar agreement at impact levels greater than zero.

Overall, the normative approach is powerful because it facilitates the development of standards for acceptable social and physical conditions that are central to visitor impact management frameworks such as Limits of Acceptable Change, Visitor Impact Management, or Visitor Experience and Resource Protection (Shelby & Vaske, 1991). In addition, the visual representation has proven useful to the process of communicating normative concepts to resource managers. Crystallization or level of agreement about the norm, however, is typically not visually displayed on a norm curve. Understanding the amount of agreement regarding a given issue allows decision makers to avoid or at least plan in advance for potential conflicts between users. When agreement among respondents is high, confidence in a management action increases. In cases with low levels of agreement, caution should be exercised when adopting a given decision.

The potential for conflict index (PCI) developed by Manfredo, Vaske, and Teel (2003) advances the graphic representation of social norms by visually displaying information about their central tendency and dispersion (Vaske, Needham, Newman, Manfredo, & Petchenik, 2006).

Potential for Conflict Index (PCI)

If the goal of human dimensions research is to inform management decisions, researchers working in this arena must improve their ability to effectively communicate. Basic summary statistics describe variables in terms of central tendency (mean, mode, median), dispersion (e.g., standard deviation, variance, range), and form (e.g., skewness, kurtosis) (Loether & McTavish, 1976). Although these statistics can efficiently convey meaning, an accurate understanding of a variable’s distribution requires consideration of all three indicators simultaneously.

Crystallization in the structural norm approach has commonly been defined as the standard deviation (Shelby et al., 1996), but norm agreement can be conveyed in other ways. The potential for conflict index (PCI), for example, describes the ratio of scoring on either side of a rating scale’s center point and displays this ratio as bubble graphs. A standard deviation is centered on the mean while the PCI is centered on the neutral point. Although both statistics can communicate agreement, the PCI bubble graphs have a more intuitive appeal.

Surveys using the structural norm approach commonly measure variables using response scales with an equal number of response options surrounding a neutral center point. Numerical ratings are assigned in ordinal fashion with the neutral point being 0 (e.g. -2, -1, 0, 1, 2, where -2 = highly unacceptable, 0 = neutral, and 2 = highly acceptable.). The potential for conflict index (PCI) requires this common form of measurement. The greatest possibility for conflict (PCI = 1) occurs when there is a bimodal distribution between the two extreme values of the response scale (e.g., 50% strongly support, 50% strongly oppose, 0% neutral). A distribution with 100% at any one point yields a PCI of 0 (i.e., no conflict).

PCI results can be displayed as bubble graphs to visually and simultaneously describe a variable’s form, dispersion, and central tendency. The size of the bubble depicts the PCI and indicates degree of dispersion (e.g., extent of potential conflict regarding the acceptability of a behavior). A small bubble suggests little potential conflict; a larger bubble suggests more

potential conflict. The center of the bubble, which is plotted on the Y-axis, indicates the mean response (central tendency) to the measured variable. With the neutral point of the response scale highlighted on the Y-axis, it is apparent that respondents' average evaluations are situated above or below the neutral point (i.e., the action, on average, is acceptable or unacceptable). Information about a distribution's skewness is reflected by the position of the bubble relative to the neutral point (i.e., bubbles at the top or bottom of the graph suggest high degrees of skewness). In this study we combine the PCI and the structural norm methodologies to analyze normative tolerances for dog associated behaviors at the City of Boulder Open Space and Mountain Parks.

Methods

Sampling Design

Data for this project were obtained from on-site surveys (n = 951) conducted at 16 locations managed by the City of Boulder Open Space and Mountain Parks during the summer of 2006 (Table 1). Representatives from OSMP distributed the self-administered surveys. Surveys were randomly distributed during July (43%), August (49%) and early September (8%). Both weekdays (47%) and weekends (53%) were included in the sample. Surveys were administered in the morning (44%), midday (32%) and evening (24%). Sampling occurred at trailheads that provide access to trails allowing dogs to be managed under voice and site control.

Table 1. Survey locations

Survey locations	Number	Percent
East Boulder – Gunbarrel	53	6
East Boulder – Teller Farm	21	2
Dry Creek	79	8
Bobolink	72	8
South Boulder Creek at EBCC	31	3
Marshall Mesa	66	7
Greenbelt Plateau	12	1
Doudy Draw	18	2
South Mesa	107	11
Shanahan Ridge	52	5
Chautauqua	216	23
Sanitas	64	7
Foothills	15	2
Sage	44	5
Eagle	53	6
Gregory Canyon	48	5
Total	951	100

Variables Measured

The one-page survey included general questions related to: (a) frequency of visitation, (b) dog ownership, (c) activities participated in on the day the individual was interviewed, (d) demographics (sex, age, education, place of residence), and (e) beliefs about off leash dogs at OSMP. The actual survey wording and basic descriptive findings are presented in Appendix A.

Questions related to normative tolerances examined 11 specific behaviors that could potentially create conflict for OSMP visitors. This list of behaviors was developed collectively from input

provided by OSMP and interested citizen groups. For presentation purposes these items were arranged into *direct* and *indirect* human-dog interactions. The direct behaviors involved situations where dogs interacted with visitors other than their guardians. In the indirect behaviors, the dog interacted with the guardian, wildlife or other dogs, or the guardian failed to pick up after their dogs.

The direct behaviors included:

- Dogs jumping on a visitor
- Dogs pawing a visitor
- Dogs licking a visitor
- Dogs sniffing a visitor
- Dogs approaching uninvited

The indirect behaviors included:

- Owners not picking up after their dogs
- Dogs causing wildlife to flee
- Dogs flushing birds
- Owners repeatedly calling their dogs
- Dogs off trail
- Dogs "play" chasing another dog

For each of these 11 behaviors, respondents indicated: (a) the frequency of observing the specific behavior for off leash dogs, (b) their acceptability ratings of the behavior, and (c) their maximum tolerances for the behavior on a typical OSMP visit. Response categories for the frequency of observing the behavior ranged from 0 to 6 or more times. Acceptability ratings were coded on 5-point scales ranging from -2 (very unacceptable) to +2 (very acceptable) with 0 as the mid-point of the scale. The maximum number of times that a respondent would find the observed behavior acceptable on a typical visit to OSMP ranged from 0 to 6+ times.

Results

Descriptive Findings

Fifty-six percent of the sample was female and 44% male (Table 2). Half of the respondents were between the ages of 31 to 50, with another quarter over 50. The average age was 42 years old. A third of the sample held a bachelors degree and 53% had attended some graduate school or held masters or doctoral / professional degrees. Nearly half of the sample (48%) lived within the city limits of Boulder (Table 3).

A quarter of the sample had visited OSMP locations two years or less; over a third (38%) had been visiting more than 10 years (Table 4). The average number of years visiting OSMP locations was 11. Forty-one individuals (4%) had been visiting for more than 30 years.

About a quarter (26%) of the individuals in the sample had made between 1 and 10 visits to OSMP locations within the past 12 months. On the other extreme, 38% had made more than 90 visits during the previous year. The average number of visits per year was 92 and ranged from 1 to 365 visits.

A third of the respondents had made between 1 and 3 visits during the past month (Table 4). Another third had visited 4 to 10 times, and a third had made more than 10 visits in the last month. The average number of visits per month was 10 and the range was from 1 visit to more than 31 visits.

Table 2. Demographic profile

	Respondents	
	Number	Percent
Sex		
Male	386	44
Female	492	56
Age		
< 20	32	4
21 to 30	155	18
31 to 40	206	24
41 to 50	228	27
51 to 60	170	20
61 to 70	56	6
> 70	14	1
Mean age	42.24	
Education		
High school or less	41	5
Some college	71	8
College graduate	307	35
Some graduate school	95	11
Masters degree	245	28
Doctoral or professional degree	119	14

Table 3. Place of residence

	Respondents	
	Number	Percent
Boulder (within city limits)	419	48
Louisville	51	6
Lafayette	44	5
Superior	23	3
Longmont	21	2
Unincorporated Boulder County	122	14
Other city in Boulder County	10	1
Metro Denver	94	11
Other area in Colorado	31	3
Out of state	63	7
Out of country	5	1

Table 4. Frequency of visitation

	Respondents					
	Number	Percent	Mean	Standard Deviation	Minimum	Maximum
Number of years visiting OSMP			10.94	10.48	0	61
1st year	84	9				
1 to 2 years	146	16				
3 to 5 years	147	16				
6 to 10 years	190	21				
11 to 20 years	216	24				
21 to 30 years	96	10				
More than 30 years	41	4				
Number of visits during past 12 months			92.56	107.62	1	365
1 to 10 visits	246	26				
11 to 30 visits	179	19				
31 to 90 visits	158	17				
91 to 180 visits	172	18				
181 to 365 visits	194	20				
Number of times visited OSMP during past month			10.34	10.36	1	60
1 visit	171	18				
2 to 3 visits	139	15				
4 to 5 visits	126	13				
6 to 10 visits	188	20				
11 to 20 visits	188	20				
21 to 31 visits	109	12				
More than 31 visits	18	2				

Over half (54%) of the respondents considered themselves to be dog guardians (Table 5). Of these individuals, 71% owned one dog and another quarter owned two dogs. Over half (56%) walk their dogs two or more times per week at OSMP areas. The average number of dogs per dog walker was 1.35.

Fifty-six percent were not visiting OSMP with a dog on the day they completed the survey; about a third were visiting with one dog and about a tenth (11%) with 2 or 3 dogs. On the day the respondent was interviewed, over a quarter (28%) considered their activity to be walking a dog (Table 6). More than half (57%) were walking or hiking without a dog and a fifth (21%) were runners.

Table 5. Dog guardians

	Respondents	
	Number	Percent
Are you currently a dog guardian?		
No	431	46
Yes	509	54
Number of dogs currently owned		
1	364	71
2	121	24
3	21	4
4	3	1
Number of dogs with you on today's visit		
No dogs	495	56
1 dog	283	32
2 dogs	93	10
3 dogs	11	1
4 dogs	4	< 1
5 dogs	3	< 1
Frequency of walking dogs at OSMP		
Never	78	15
1 to 4 visits per month	146	29
2+ visits per week	285	56

Table 6. Activities on day of interview [1]

	Respondents	
	Number	Percent
Walking Dog	263	28
Walking / Hiking	524	57
Running	198	21
Bicycling	54	6
Bird watching	61	7
Wildlife viewing	67	7

1 Because respondents could check more than one activity, percents do not sum to 100.

All behaviors were thought to be a slight to extreme problem. The most problematic behaviors were owners not picking up after their dog, dogs causing wildlife to flee, dogs jumping on a visitor, dogs pawing a visitor and dogs flushing birds.

Across all 11 potential problem behaviors, "owners not picking up after their dogs" was considered to be an "extreme problem" by 57% of all respondents (Table 7). Almost all (91%) individuals rated this behavior as at least slightly problematic. Only 10% indicated that they had observed this behavior on the day they completed the survey.

Among the other "indirect" behaviors, "dogs causing wildlife to flee" (35%) and "dogs flushing birds" (24%) were also evaluated as extreme problems, with about three quarters indicating that these behaviors were slightly to extremely problematic. These behaviors, however, were only observed by 3% and 2%, respectively, on the day they were interviewed.

Nearly half of the respondents rated "dogs off trail" (47%) and "dogs 'play' chasing another dog" (44%) as problematic to at least some extent. A third observed dogs off trail and nearly a fifth reported seeing dogs play chasing another dog.

Among the five "direct" human-dog interaction variables, "dogs jumping on a visitor" was considered an extreme problem by 35% of the respondents; 82% rated this behavior as at least a "slight problem." "Dogs pawing a visitor" was considered a problem (slight to extreme) by three quarters of the visitors. Both of these behaviors, however, were observed by only 3% or less of the respondents on the day the survey was completed.

"Dogs approaching another visitor uninvited" and "dogs sniffing a visitor" were seen as a problem (slight to extreme) by two thirds and half of the visitors, respectively. These two behaviors were observed by about a fifth of the respondents on the day they were surveyed.

Table 7. Perceived problems associated with human-dog interactions

	Extent of Problem *if* Behavior Occurs [1]				
For dogs off leash:	Not at all a problem %	Slight problem %	Moderate problem %	Extreme problem %	Percent Observing Behavior Today
Indirect interaction					
Owners not picking up after their dogs	9	12	22	57	10
Dogs causing wildlife to flee	23	20	22	35	3
Dogs flushing birds	28	26	22	24	2
Owners repeatedly calling their dogs	30	39	22	9	12
Dogs off trail	53	29	13	5	32
Dogs "play" chasing another dog	56	26	13	5	18
Direct interaction					
Dogs jumping on a visitor	18	22	25	35	3
Dogs pawing a visitor	24	26	26	24	2
Dogs licking a visitor	35	30	19	16	6
Dogs approaching uninvited	32	32	20	16	19
Dogs sniffing a visitor	48	29	14	9	18

1. Cell entries are row percents

Consistent with perceived problem measures, 91% of the respondents agreed with the statement "It bothers me when dog owners do not pick up after their dogs" (Table 8). Over three-quarters agreed that "Dog owners who *cannot* control their dogs off leash *should not* be allowed to visit OSMP areas with their dogs off leash" and that "It is OK for a visitor to say something to a dog owner who does *not* have his or her dog under control." Seventy-five percent, however, felt that "Most dog owners are responsible individuals who keep their dogs under control at OSMP areas."

Over three quarters disagreed that "Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them" and over half enjoyed watching dogs off leash at OSMP areas."

Table 8. Beliefs about off leash dogs [1]

	Disagree	Neutral	Agree
Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them	78	13	9
The behavior of off leash dogs is a problem at OSMP areas	60	20	20
I do ***not*** think that there are any real impacts from off leash dogs at OSMP areas	42	25	33
I enjoy watching dogs off leash at OSMP areas	17	25	58
It's OK that off leash dogs use OSMP areas as long as they do ***not*** affect me	17	20	63
Most dog owners are responsible individuals who keep their dogs under control at OSMP areas	9	16	75
Dog owners who ***cannot*** control their dogs off leash ***should not*** be allowed to visit OSMP areas with their dogs off leash	10	13	77
It is OK for a visitor to say something to a dog owner who does ***not*** have his or her dog under control	6	16	78
It bothers me when dog owners do ***not*** pick up after their dogs	2	7	91

1. Cell entries are row percents

Normative Tolerances

Acceptability Ratings: Normative Tolerances

Social norm curves for the acceptability of the 11 behaviors are shown in Figure 3 (indirect interaction) and Figure 4 (direct interaction). These plots show the average acceptability ratings across all respondents. Four of the six indirect behaviors were always rated as unacceptable (i.e., no tolerance norms) regardless of the number of times the behavior was observed. Dogs off trail was consistently only marginally above the neutral line and dogs play chasing was somewhat acceptable across the number of times the behavior was observed (Figure 3). All of the direct interaction behaviors were "no tolerance norms" with acceptability ratings consistently below the neutral line (Figure 4).

Figure 3. Social norm curves for “indirect” human-dog interactions

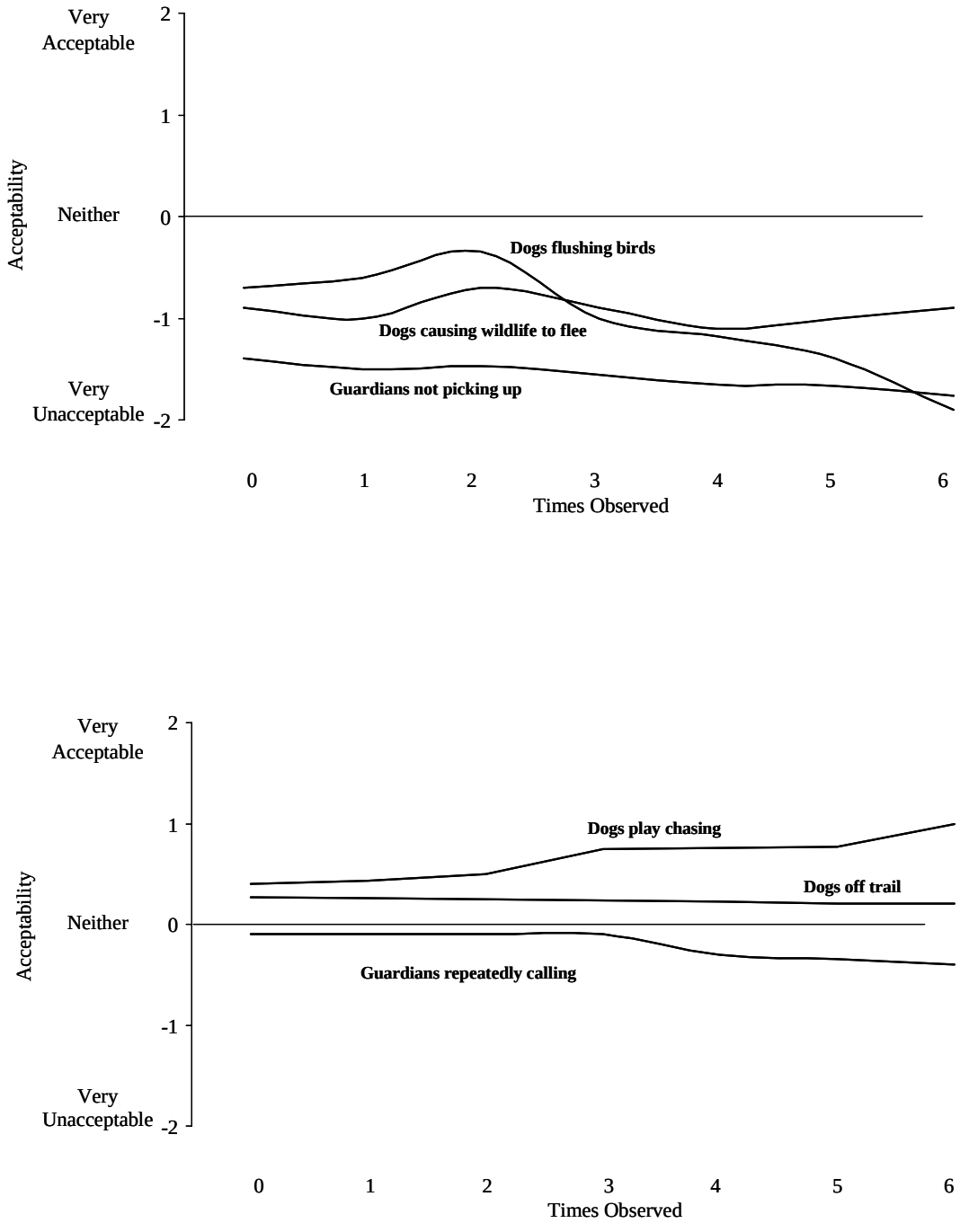
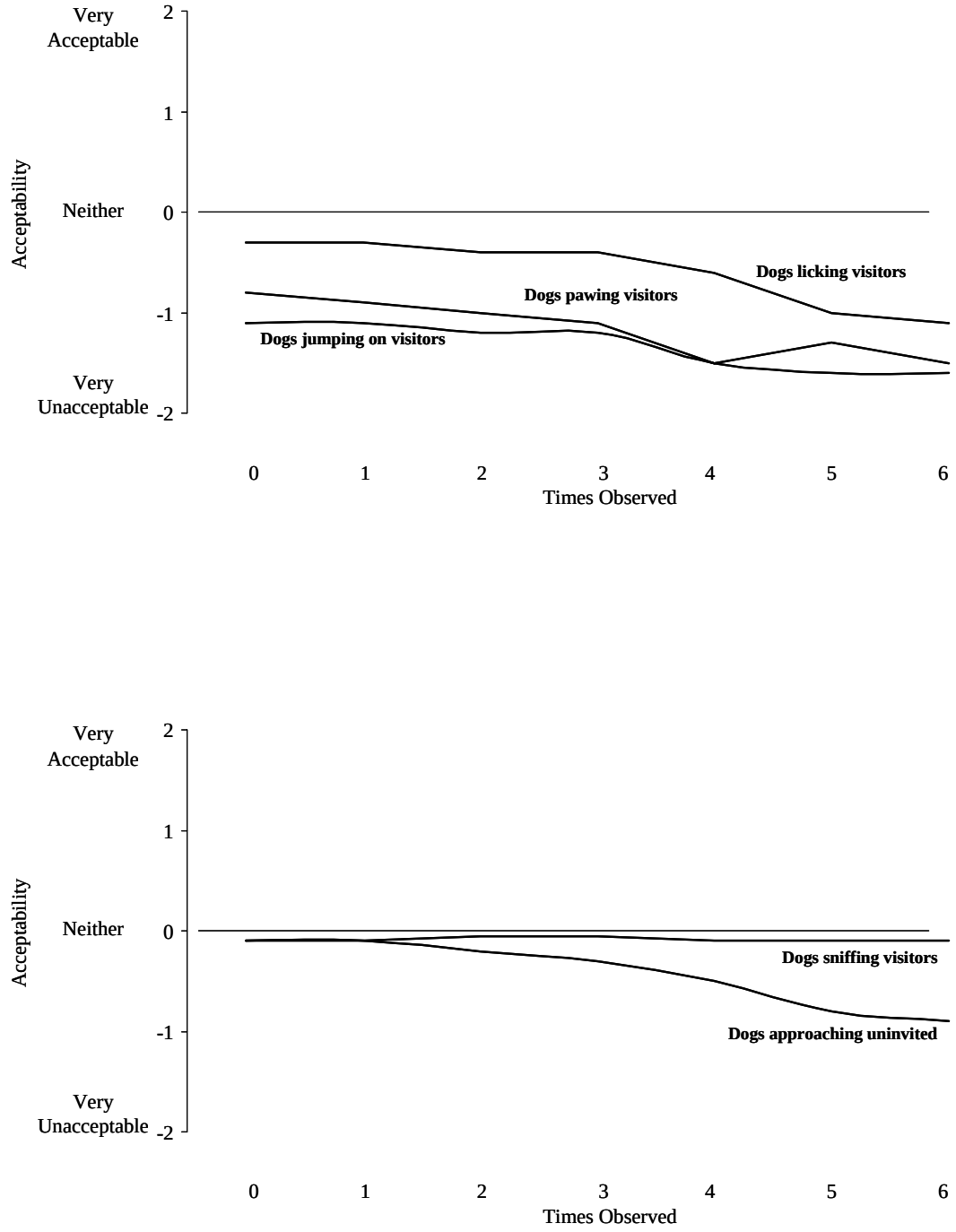


Figure 4. Social norm curves for “direct” human-dog interactions



Acceptability Ratings: Potential for Conflict Indices

Given the "no tolerance norms" (Figures 3 and 4) regardless of the number of times the behavior was observed, the next analysis step focused on respondents' level of agreement regarding the acceptability of each of the 11 behaviors. These findings (Figures 5 and 6) are shown as Potential for Conflict Indices (PCI). A PCI value can range from 0 (no conflict) to 1 (maximum conflict). The size of the bubble depicts the PCI and indicates degree of dispersion (e.g., extent of potential conflict regarding the acceptability of a behavior). A small bubble suggests little potential conflict; a larger bubble suggests more potential conflict. The center of the bubble is plotted on the Y-axis, with averages above the neutral line indicating an acceptable evaluation and those below the neutral line suggesting an unacceptable rating. Skewness is reflected by the position of the bubble relative to the neutral point (i.e., bubbles at the top or bottom of the graph suggest high degrees of skewness).

Consistent with the findings noted above, the average acceptability ratings for four of the indirect interaction behaviors fell below the neutral line and two were slightly above the neutral line (Figure 5). The most consensus (i.e., smallest bubble) occurred for guardians not picking up after their dog (PCI = .10). The least amount of agreement (PCI = .45) was for guardians repeatedly calling their dogs. This bubble straddled the neutral line suggesting that some individuals found this behavior slightly acceptable and some slightly unacceptable. The bubbles for "dogs causing wildlife to flee" and "dogs flushing birds" were both below the neutral line with PCI values of .24 and .30, respectively. Thus, on average, both of these behaviors were rated as slightly unacceptable with a "fair" amount of consensus. Conversely, the bubbles for "dogs off trail" and "dogs play chasing another dog" were both above the neutral line (i.e., on average slightly acceptable) with PCI values of .35 and .30, respectively.

The average acceptability ratings and associated PCI values for the direct interaction behaviors are shown in Figure 6. The least acceptable ratings and most consensus occurred for "dogs jumping on visitors" and "dogs pawing visitors." Both of these behaviors were considered slightly unacceptable with PCI values of .18 and .21, respectively. At the other extreme of Figure 6, the bubble for "dogs sniffing visitors" straddled the neutral line and the PCI value of .48 indicated less consensus than for the other behaviors.

To further understand individuals' normative tolerances, Table 9 displays (a) the average number of times each behavior was typically observed, (b) the maximum number of times the behavior would be tolerated, and (c) the percent of time the norm was exceeded. To calculate this latter estimate, we followed the procedures outline in Vaske and Donnelly (2002). Each respondent's reported number of times a behavior was observed was compared to his/her maximum number of times the behavior would be tolerated. If the reported observation of the behavior was greater than the maximum tolerance for that behavior, the individual saw more than his/her norm. For example, if a person saw the behavior three times on a typical visit and his/her tolerance for the behavior was zero, the individual's norm was exceeded. The last column of Table 9 is the percent of individuals in the sample who reported seeing more than their norm on a typical visit.

For "owners not picking up after their dogs," the average number of times the behavior was observed was 1.57 times. The maximum number of times that the behavior would be tolerated was .54. For the entire sample, this norm was exceeded 50% of the time. As a second example, "dogs approaching uninvited" was observed on average 2.08 times, while the maximum number of times people would tolerate this behavior was 1.92. The norm for this behavior was exceeded 35% of the time.

Figure 5. PCI acceptability norms for “indirect” human dog interactions: Entire sample

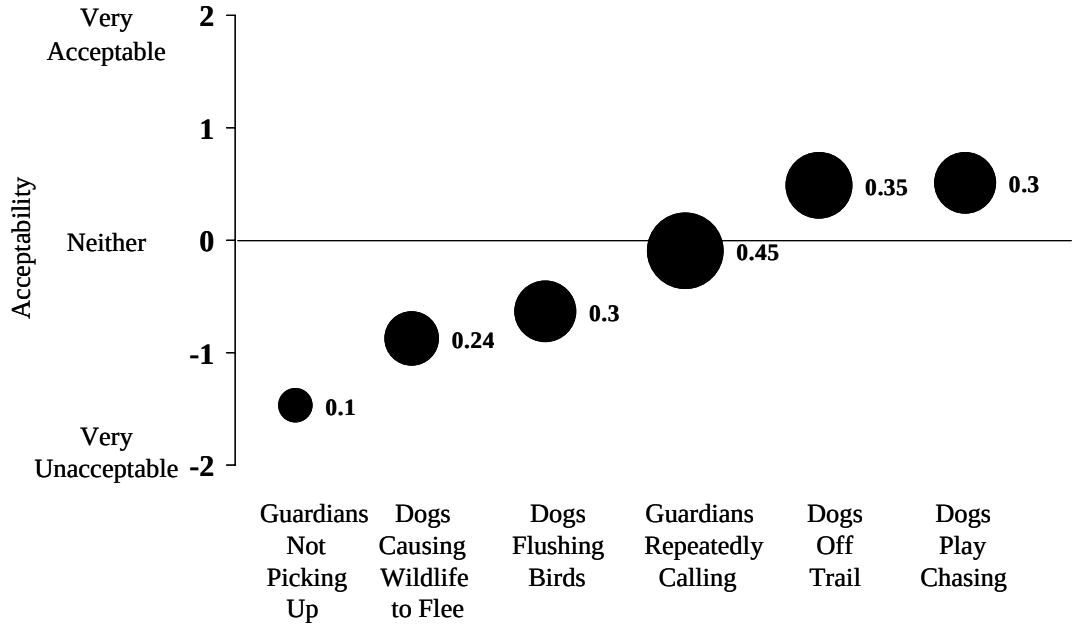


Figure 6. PCI acceptability norms for “direct” human dog interactions: Entire sample

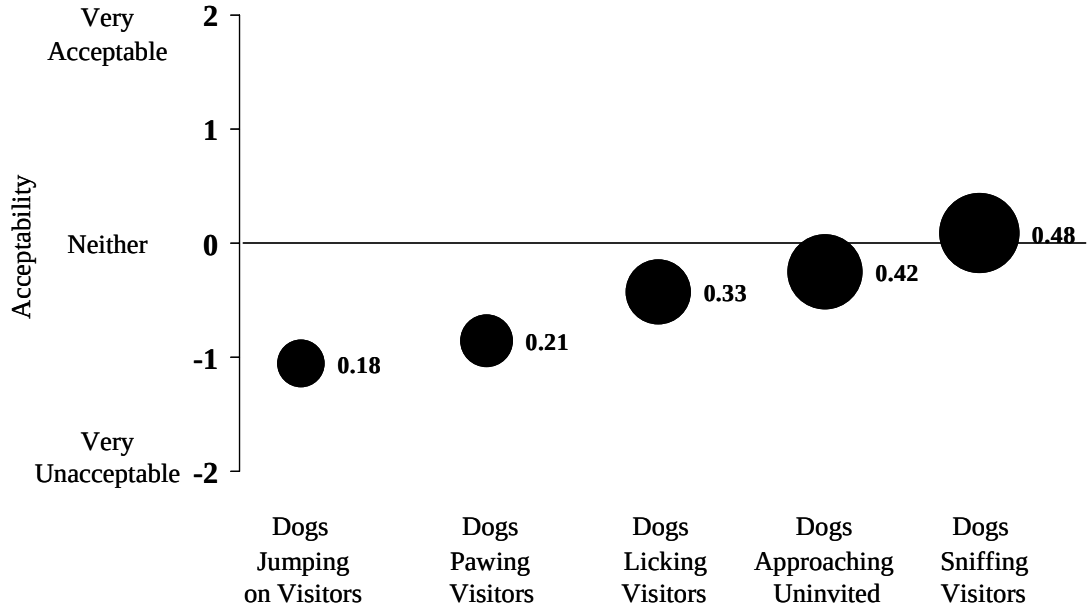


Table 9. Normative tolerances for dog behaviors

	Average Number of Times Behavior Observed	Average Maximum Number of Times Behavior Tolerated	Percent of Time Norm Exceeded
Indirect interaction			
Owners not picking up after dogs	1.57	.54	50
Owners repeatedly calling	1.73	2.04	28
Dogs off trail	2.95	3.21	28
Dogs "play" chasing another dog	2.14	2.82	18
Dogs causing wildlife to flee	.58	.86	17
Dogs flushing birds	.51	1.00	13
Direct interaction			
Dogs approaching uninvited	2.08	1.92	35
Dogs sniffing a visitor	2.13	2.39	27
Dogs jumping on a visitor	.79	.67	27
Dogs licking a visitor	.86	1.26	19
Dogs pawing a visitor	.55	.70	17

Figures 7 (indirect interaction) and 8 (direct interaction) display the norm curves and PCI values for guardians and non-guardians. As might be expected, the average acceptability ratings given by guardians were slightly more positive (although still generally negative) than those reported by non-guardians for all 11 behaviors. For the indirect interactions (Figure 7) there was slightly less agreement (i.e., larger PCI bubbles) among the guardians than the non-guardians for "guardians not picking up after their dogs," "dogs causing wildlife to flee," and "dogs flushing birds." The bubble for the guardians' evaluation of "guardians repeatedly calling their dogs" straddled the neutral line suggesting that some individuals rated this behavior as acceptable, while others did not. The guardians rated "dogs off trail" and "dogs play chasing," as slightly acceptable. The evaluations given by the non-guardians for these two behaviors straddled the neutral line. There was more agreement among the guardians (smaller bubbles) than there was among the non-guardians for these two behaviors. Similarly, for the direct interaction situations, guardians evaluated each behavior slightly more positively than the non-guardians. The guardians' PCI bubble (PCI = .5) for "dogs approaching uninvited" split the neutral line, while non-guardians judged this behavior as unacceptable and there was more agreement (PCI = .33). Guardians rated "dogs sniffing visitors" as slightly acceptable, while non-guardians evaluated this behavior as slightly unacceptable. Overall, differences between guardians and non-guardians across all 11 behaviors were minimal.

Our analyses also explored other potential predictors of the norm acceptability ratings (Table 10 and Appendix B). No significant differences were found between the demographic variables (sex, age, education) and the norm acceptability ratings for 10 of the 11 human-dog interaction behaviors. When residents living within the city limits of Boulder were compared with non-Boulder residents no significant differences emerged across all 11 acceptability ratings. Similarly, analyses contrasting Boulder city limit residents vs. Boulder County residents vs. respondents from other locations, revealed no significant differences. A similar pattern of findings (i.e., no / limited significant differences) emerged for frequency of visitation over the past year and past month, as well as for participation in activities such as walking, hiking, running and bicycling on the day the respondent was interviewed.

Table. 10. Summary of other potential predictors of norm acceptability ratings

Independent Variable	Number of Significant Differences on 11 Norm Acceptability Ratings	Acceptability Ratings with Significant Differences
Demographics		
Sex	1	Owners not picking up after their dogs
Age	1	Dogs sniffing a visitor
Education	1	Owners not picking up after their dogs
Place of Residence		
Boulder vs. Non-Boulder Residents	0	
Boulder vs. Boulder County vs. Other	0	
Frequency of Visiting		
Past 12 months	0	
Past Month	1	Owners not picking up after their dogs
Activities		
Walking / Hiking	1	Dogs play chasing
Running	0	
Bicycling	0	

Summary of Normative Tolerances

- Nine of the 11 indicators reflected "no tolerance" norms. The average acceptability ratings for these behaviors were negative irrespective of the number of times the behaviors were observed. Thus, *the visitors' reported standard for each of these nine behaviors was 0.*
- For "dogs play chasing" and "dogs off trail," a single tolerance norm was observed with acceptability ratings only slightly above neutral (i.e., the average acceptability ratings were +0.48 for "dogs off trail" and +0.51 for "dogs play chasing with another dog"). *Given that the averages were less than 1, the visitors' standard for these two behaviors was in essence 0.*
- Although statistical differences between some sub-groups (e.g., guardians vs. non-guardians, frequency of walking dogs at OSMP) were identified in our analyses, the magnitude of these differences was minimal. The "no tolerance" standards for the entire sample are thus applicable to all stakeholders.

Figure 7. PCI acceptability norms for "indirect" human-dog interactions: Guardians vs. Non-guardians

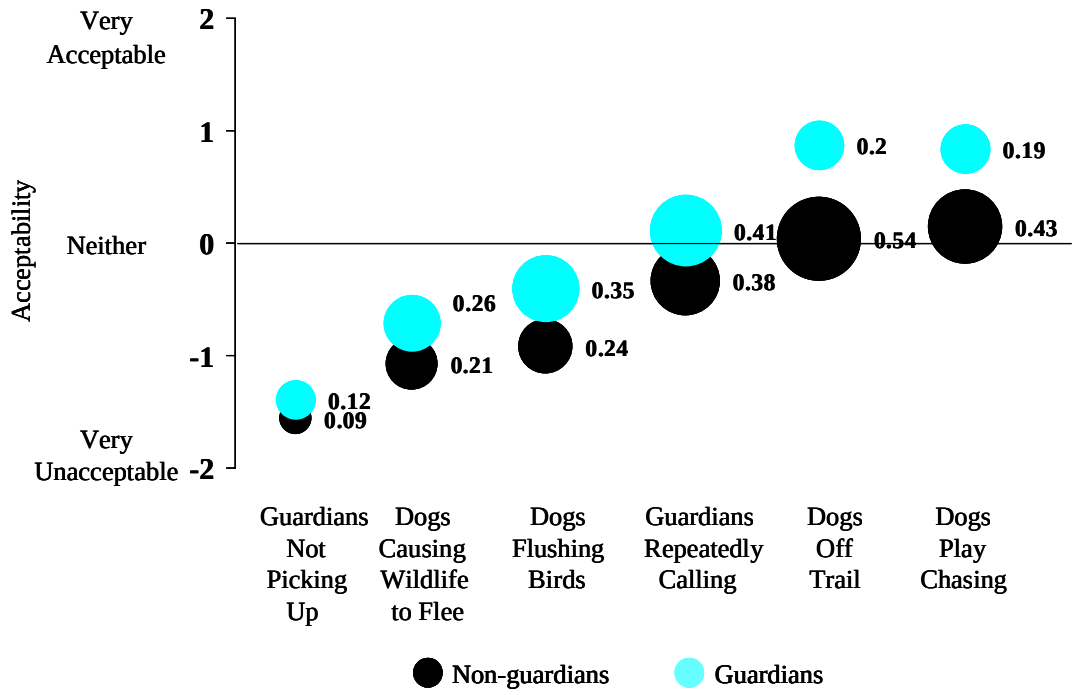
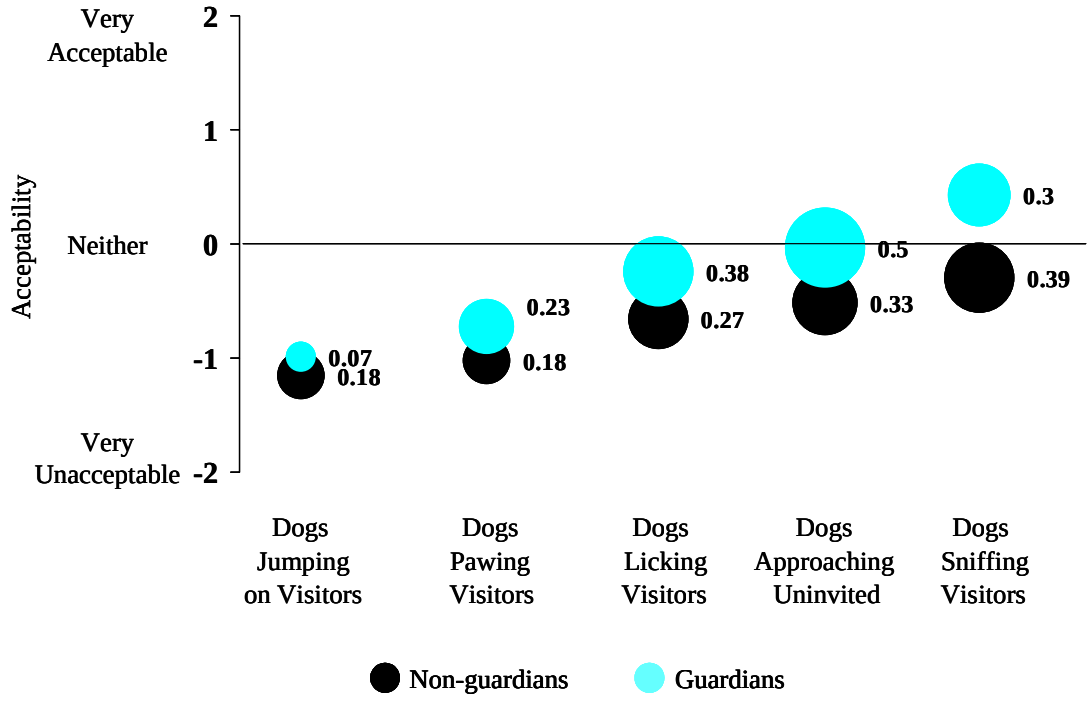


Figure 8. PCI acceptability norms for "direct" human-dog interactions: Guardians vs. Non-guardians



Discussion

Virtually all natural resource planning frameworks recommend identifying and establishing *quantitative* impact indicators and standards (e.g., the Limits of Acceptable Change [LAC], Stankey et al. 1985; Visitor Impact Management [VIM], Graefe et al., 1990; Visitor Experience and Resource Protection [VERP], National Park Service 1997). *Indicators* are the biophysical, social, managerial, or other conditions that managers and visitors care about for a given experience. *Standards* restate management objectives in quantitative terms and specify the appropriate levels or acceptable limits for the impact indicators (i.e., how much impact is too much for a given indicator). Standards identify conditions that are desirable (e.g., all visitors picking up after their dogs), as well as the conditions that managers don't want to exceed (e.g., no uninvited dogs interacting with visitors). Specific standards are established for each impact indicator and define an acceptable level of impact for each indicator. Just as impact indicators reflect management goals and objectives, standards are quantifiable value judgments concerning what the agency is attempting to achieve.

Quantitative standards serve several important functions. First, standards articulate in unambiguous terms what outputs management is trying to provide. Natural resource experiences are created through the interaction of social, biological, and physical conditions, and the visitors' expectations and preferences for those conditions. While managers do not create *experiences*, they are responsible for creating *opportunities* for experiences by manipulating social, environmental, and managerial conditions. Quantitative standards help shape those opportunities (i.e., a demand function) and signal whether or not that opportunity is possible given existing conditions (i.e., a supply function).

Second, standards help establish priorities for management, focus on future conditions, and allow managers to be proactive. There is a need to look ahead to what actions might be employed to meet standards, as well as a need to look back at the goals management is trying to achieve (Vaske et al., 2000). Standards define minimum or optimal conditions and allow managers to note when impacts are approaching defined levels, rather than waiting for problems to occur and then reacting to them (Whittaker & Shelby, 1992).

Third, standards focus attention on specific conditions and problems or benefits and turn managers' attention to the quality of recreation opportunities. By concentrating on the conditions that create experiences, the probable causes of unacceptable impacts as well as the potential benefits to different stakeholders can be identified (Graefe et al., 1990).

Fourth, indicators and standards provide a base for measuring the rate and magnitude of change and for evaluating the acceptability of that change. The literature sometimes confuses the concepts of impact change and evaluation (Shelby & Heberlein, 1986). The confusion can be illustrated by the term "wildlife harassment." Harassment refers to both a change (an objective impact – e.g., the birds flew away when humans approached) and a value judgment that the impact exceeds some standard. While most people would agree that management actions are necessary when wildlife harassment occurs, there is less consensus about what constitutes harassment. All human use has some impact. Whether the impact is harassment depends on management objectives (e.g., protect the migratory birds), standards (e.g., migratory birds should never be flushed from their nesting areas because of the presence of humans or dogs), expert opinion, and public values. Breaking concepts like harassment into two parts – the impact component (change in wildlife behavior or experiential change) and the evaluative component (the acceptability of the change) – provides a foundation for thinking about potential problem situations.

Fifth, standards link concrete, on-the-ground conditions with more intangible, qualitative experiences. While experiences are social psychological entities, standards are tangible and specific. With the development of quantitative standards, a more rational discussion of the area's objectives can occur with the different stakeholders (Whittaker & Shelby, 1992). For example, comparing existing conditions against the standards provides a quantitative estimate of whether any experiential changes are within the limits specified by standards, and whether the benefits suggested to accrue to stakeholders have been realized.

Based on previous work (Graefe et al., 1990; Vaske et al., 2002; Whittaker & Shelby, 1992) and the findings in this report, the following discusses (a) several important characteristics of good standards and (b) offers recommendations for setting standards at OSMP.

Characteristics of Good Standards

As noted by some investigators (Vaske et al., 2002; Whittaker & Shelby, 1992), a good standard is: (a) quantifiable, (b) attainable, and (c) output oriented. Standards restate management objectives in *quantitative terms*. A good standard unequivocally states the level of acceptable impact. Such statements define how much is acceptable in quantitative terms. For example, a good standard might specify that less than 5% of OSMP visitors will be approached uninvited by dogs off leash. Specifying that there should only be "a few" visitors that will be approached by unleashed dogs is not a good standard because it does not define how many constitutes "a few."

Management standards need to be reasonably *attainable*. When standards are too easy, little is accomplished. If they are too difficult to achieve, both managers and visitors are likely to become frustrated. Good objectives and standards should "moderately challenge" the manager and staff (Whittaker & Shelby, 1992).

For each important indicator, standards should be set at levels that reflect management's intent for resource or experiential outcomes in the area (Vaske et al., 2002). While standards that are difficult to attain are generally undesirable, they may still be necessary. A "no litter" standard, for example, may not be attainable, but is still correct. The cynical excuse for not setting appropriate standards is that managing for some conditions is "too hard." On the other hand, management strategies designed to meet a standard may produce sufficient positive change to warrant the effort. Without standards, it is too easy to do nothing (management by default).

Standards should be "*output*" rather than "input" oriented (Vaske et al., 2002; Whittaker & Shelby, 1992). This distinction suggests that managers should focus on the conditions to be achieved rather than the way the standard is met. For example, a standard that specifies "only 50 unleashed dogs per day in an OSMP area" is not a good standard because it refers to an action (use limits) rather than an acceptable impact. "Less than 5% of visitors should be approached by unleashed dogs" is a better standard because it emphasizes the acceptability of different impact conditions.

Potential Standards for Human-Dog Interactions at OSMP

This report examined 11 human-dog interaction indicators in terms of respondents' normative tolerances for these behaviors. These indicators had been identified and collectively agreed upon by OSMP staff and citizen interest groups. Nine of the 11 indicators reflected "no tolerance" norms. In other words, the average acceptability ratings were negative for these behaviors (Column 1, Table 12). This implies that the evaluations of these behaviors were unacceptable, regardless of the number of times the behaviors were observed. *The visitors' reported quantitative standards for these nine behaviors were thus 0* (Column 2, Table 11).

The other two indicators were "single tolerance" norms with acceptability ratings near the neutral line (i.e., the average acceptability ratings were +0.48 for "dogs off trail" and +0.51 for "dogs play chasing with another dog," Column 1, Table 11). *Given that the averages were less than 1, the visitors' standard for these two behaviors was in essence 0.*

Results indicated that these standards were exceeded 13% of the time or more. The most serious violation of a standard occurred for "owners not picking up after their dogs." This standard was exceeded 50% of the time. The standard for "dogs approaching uninvited" was exceeded 35% of the time.

Table 11. Reported "no tolerance" normative standards for human-dog interaction indicators

	Visitors Mean Acceptability Ratings [1]	Visitor Standards Based on Mean Acceptability Ratings	Percent of Time Standard Exceeded
Indirect interaction			
Guardians not picking up after dogs	– 1.47	0	50
Guardians repeatedly calling	– 0.10	0	28
Dogs causing wildlife to flee	– 0.88	0	17
Dogs flushing birds	– 0.64	0	13
Dogs off trail	+ 0.48	0	28
Dogs "play" chasing another dog	+ 0.51	0	18
Direct interaction			
Dogs approaching uninvited	– 0.25	0	35
Dogs sniffing a visitor	– 0.09	0	27
Dogs jumping on a visitor	– 1.06	0	27
Dogs licking a visitor	– 0.43	0	19
Dogs pawing a visitor	– 0.86	0	17

1. Means based on Figures 5 and 6.

Although statistical differences between some sub-groups (e.g., guardians vs. non-guardians, frequency of walking dogs at OSMP) were identified in our analyses, the magnitude of these differences was generally minimal. The "no tolerance" standards for the entire sample are thus applicable to all stakeholders.

Given the "no tolerance" standards for the 11 indicators, one might recommend a management standard of "no more than 0% of the visitors should have their norms exceeded" for any of these human-dog interaction variables. A good standard, however, should be attainable. A standard of 0% is likely to be unrealistic short of eliminating all off leash dogs at OSMP. As alternatives, management could consider less restrictive standards. Table 12 outlines three scenarios for situations where no more than 5%, 10% and 20% of visitors have their standards exceeded for each of the 11 human-dog interaction indicators. If the management standard is set at "no more than 10% of all visitors should have their norms exceeded," the visitors' standards would be exceeded under current conditions for all 11 indicators. Setting the standard at 20% implies that the visitors' standards would be met for three of the indirect (i.e., dogs causing wildlife to flee, dogs flushing birds, dogs play chasing other dog) and two direct (i.e. dogs licking a visitor, dogs

pawing a visitor) interaction indicators. Remember, however, that when standards are too easy, little is accomplished. We, therefore, do ***not*** recommend this third scenario where "no more than 20% of visitors have their norms exceeded."

Table 12. Potential management standards based on visitor reported percent time standard was exceeded

	Visitor Reported Percent of Time Standard Exceeded	Management Standard: No more than ___ % of visitors should have their normative standards exceeded [1]		
		5%	10%	20%
Indirect interaction				
Owners not picking up after dogs	50			
Owners repeatedly calling	28			
Dogs causing wildlife to flee	17			✓
Dogs flushing birds	13			✓
Dogs off trail	28			
Dogs "play" chasing another dog	18			✓
Direct interaction				
Dogs approaching uninvited	35			
Dogs sniffing a visitor	27			
Dogs jumping on a visitor	27			
Dogs licking a visitor	19			✓
Dogs pawing a visitor	17			✓

1. ✓ indicates that the standard would be met; a blank indicates that the standard would not be met.

If one accepts the logic presented here, the "no more than 0% (or 20%) of visitors having their norms exceeded" are not viable options. The former management standard (0%) is likely to be unachievable. The latter management standard (20%) may not result in desired visitor experiences and is likely to fall short of management goals and objectives. Of the other two suggested management standards for off leash dogs, the "no more than 10% of visitors having their norms exceeded" is consistent with the standards currently in the OSMP Visitor Master Plan. For example, one OSMP standard states that there should be 90% compliance with dog control and excrement removal. Although the proposed standard of 10% is never met under current conditions, OSMP's Voice and Sight Tag (VST) Program had just been implemented at the time our data were collected.

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Appendix A

Survey and Descriptive Findings

1. About ***how many years*** have you been coming to Open Space & Mountain Parks?

	Respondents	
Number of years visiting OSMP	Number	Percent
1st year	84	9
1 to 2 years	146	16
3 to 5 years	147	16
6 to 10 years	190	21
11 to 20 years	216	24
21 to 30 years	96	10
More than 30 years	41	4
Total	920	100
Mean	10.94	
Standard Deviation	10.48	
Minimum	0	
Maximum	61	

2. ***During the past 12 months***, about how many times did you visit OSMP locations?

	Respondents	
Number of visits during past 12 months	Number	Percent
1 to 10 visits	246	26
11 to 30 visits	179	19
31 to 90 visits	158	17
91 to 180 visits	172	18
181 to 365 visits	194	20
Total	949	100
Mean	92.56	
Standard Deviation	107.62	
Minimum	1	
Maximum	365	

3. ***During this past month***, about how many times did you visit OSMP locations?

	Respondents	
Number of times visited OSMP during past month	Number	Percent
1 visit	171	18
2 to 3 visits	139	15
4 to 5 visits	126	13
6 to 10 visits	188	20
11 to 20 visits	188	20
21 to 31 visits	109	12
More than 31 visits	18	2
Total	952	100
Mean	10.34	
Standard Deviation	10.36	
Minimum	1	
Maximum	60	

4. Many people enjoy visiting Open Space & Mountain Parks (OSMP) with their dogs off leash.
In thinking about ***a typical visit*** to OSMP areas, for dogs off leash, please estimate:
   a) The number of times you ***personally observed each*** of the following behaviors on a typical visit to OSMP?
   b) In general, please rate how acceptable ***each*** of the behaviors is at OSMP areas.
   c) What would be the ***maximum number of times*** that you would find the observed behavior acceptable on a typical visit to OSMP areas?

For dogs off leash:	(a) Number of times *personally observed* on a typical visit to OSMP areas (*Circle one number*) *%*							(b) In general, how acceptable is this behavior at OSMP areas? Very Unacceptable … Very Acceptable *%*					(c) ***Maximum number of times*** that you would find the observed behavior acceptable on a typical visit to OSMP *%*						
	0	1	2	3	4	5	6+	-2	-1	0	+1	+2	0	1	2	3	4	5	6+
A. Dogs off trail	17	17	14	14	7	7	24	11	14	22	24	30	18	13	12	11	6	10	30
B. Owners repeatedly calling or yelling at their dogs	29	29	17	9	4	4	8	15	25	28	19	13	27	22	17	12	6	6	10
C. Dogs "play" chasing another dog	27	21	16	10	8	6	12	9	13	26	23	29	21	19	12	10	7	7	24
D. Dogs flushing birds	75	13	5	3	1	1	2	37	21	24	8	11	64	12	6	8	3	2	5
E. Dogs causing wildlife to flee	71	16	6	3	1	1	2	45	20	19	6	9	66	14	7	4	2	2	5
F. Dogs approaching uninvited	26	18	20	14	9	4	9	22	23	25	17	13	36	19	12	10	6	5	12
G. Dogs jumping on a visitor	61	20	10	4	1	1	3	52	21	15	8	7	70	14	7	3	2	1	3
H. Dogs licking a visitor	60	19	10	5	2	2	3	27	22	28	13	10	51	20	10	7	2	2	8
I. Dogs pawing a visitor	73	15	5	2	2	1	2	41	25	21	6	7	69	15	6	5	1	1	3
J. Dogs sniffing a visitor	27	20	16	15	6	6	10	15	17	29	20	19	28	16	15	12	6	5	18
K. Owners not picking up after their dogs	39	23	14	9	4	3	8	72	13	8	3	4	77	10	5	3	2	1	2

5. To what extent do you feel ***each*** of the following is a ***problem for <u>you</u> if it ever occurs*** at OSMP areas? (***Circle one number for each statement***)

For dogs off leash:	Not at all a problem %	Slight problem %	Moderate problem %	Extreme problem %
A. Dogs off trail	53	29	13	5
B. Owners repeatedly calling or yelling at their dogs	30	39	22	9
C. Dogs "play" chasing another dog	56	26	13	5
D. Dogs flushing birds	28	26	22	24
E. Dogs causing wildlife to flee	23	20	22	35
F. Dogs approaching uninvited	32	32	20	16
G. Dogs jumping on a visitor	18	22	25	35
H. Dogs licking a visitor	35	30	19	16
I. Dogs pawing a visitor	24	26	26	24
J. Dogs sniffing a visitor	48	29	14	9
K. Owners not picking up after their dogs	9	12	22	57

6. From the list of items (*A* to *K*) in Question 5, did you observe any of the off leash dog-related behaviors ***today***? (***Circle all letters from the list in Question 5 that apply to today's visit***)

	Percent
A. Dogs off trail	32
B. Owners repeatedly calling or yelling at their dogs	12
C. Dogs "play" chasing another dog	18
D. Dogs flushing birds	2
E. Dogs causing wildlife to flee	3
F. Dogs approaching uninvited	19
G. Dogs jumping on a visitor	3
H. Dogs licking a visitor	6
I. Dogs pawing a visitor	2
J. Dogs sniffing a visitor	18
K. Owners not picking up after their dogs	10

7. ***On today's visit***, ***about*** how many dogs did you see at this OSMP location?

	Respondents	
Number of dogs **off leash**	Number	Percent
0	114	13
1	94	11
2	109	12
3	72	8
4	67	8
5	94	11
6 to 10	214	24
11 to 20	86	10
More than 20	23	3
Total	873	100
Mean	6.11	
Standard Deviation	8.84	
Minimum	0	
Maximum	50	

	Respondents	
Number of dogs **on leash**	Number	Percent
0	139	17
1	139	17
2	151	18
3	104	13
4	93	11
5	68	8
6 to 10	105	13
11 to 20	20	2
More than 20	11	1
Total	830	100
Mean	3.54	
Standard Deviation	4.71	
Minimum	0	
Maximum	50	

8. Do you own a dog?

	Respondents	
	Number	Percent
No – I have never owned a dog	151	16
No – But I used to own a dog	280	30
Yes	509	54
Total	940	100

If yes, how many dogs do you currently own?

Number of dogs currently owned	Respondents Number	Percent
1	364	71
2	121	24
3	21	4
4	3	1
Total	509	100

If yes, about how frequently do you visit OSMP locations with your dog? (***Check one response***)

	Respondents	
	Number	Percent
Never	78	15
Once a month	55	11
Twice a month	32	6
3 times per month	18	3
4 times per month (once a week)	41	8
2 times per week	59	12
3 to 4 times per week	89	18
5 to 6 times per week	68	13
Daily	69	14
Total	509	100

9. During this visit ***today***, how many dogs did you have with you? (***Check one response***)

	Respondents	
	Number	Percent
No dogs	495	56
1 dog	283	32
2 dogs	93	10
3 dogs	11	1
4 dogs	4	< 1
5 dogs	3	< 1

10. Were the dogs that you had with you today: (***Check all that apply***)

	Respondents	
	Number	Percent
Leashed ***all*** of the time?	72	17
Leashed ***part*** of the time?	237	55
Leashed ***none*** of the time?	76	18
Did not have a dog with me	258	48

11. Which activities did you participate in ***today*** at this particular OSMP location? ***(Check all that apply)***

	Respondents	
	Number	Percent
walking / hiking	524	57
walking your dog	263	29
running	198	21
bird watching	61	7
wildlife viewing	67	7
bicycling	54	6
climbing	18	2
other	20	2

12. Please indicate whether you agree or disagree with ***each*** of the following statements.
(***Circle one number for each statement***)

	Percent				
	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly agree %
I enjoy watching dogs off leash at OSMP areas	8	9	25	23	35
It's OK that off leash dogs use OSMP areas as long as they do ***not*** affect me	7	10	20	32	31
Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them	60	18	13	6	3
The behavior of off leash dogs is a problem at OSMP areas	35	26	19	13	7
I do ***not*** think that there are any real impacts from off leash dogs at OSMP areas	16	27	24	17	16
Dog owners who ***cannot*** control their dogs off leash ***should not*** be allowed to visit OSMP areas with their dogs off leash	5	5	13	37	40
It is OK for a visitor to say something to a dog owner who does ***not*** have his or her dog under control	1	4	16	45	34
Most dog owners are responsible individuals who keep their dogs under control at OSMP areas	2	6	17	45	30
It bothers me when dog owners do ***not*** pick up after their dogs	1	1	7	26	65

13. What is your sex?

	Respondents	
Sex	Number	Percent
Male	386	44
Female	492	56
Total	878	100

14. What is your age?

	Respondents	
Age categories	Number	Percent
≤ 20	32	4
21 to 30	155	18
31 to 40	206	24
41 to 50	228	27
51 to 60	170	20
61 to 70	56	6
71 +	13	1
Total	860	100
Mean	42.24	
Standard Deviation	13.09	
Minimum	15	
Maximum	84	

15. Where do you live? (***Check one response***)

	Respondents	
	Number	Percent
Boulder (within city limits)	419	48
Louisville	51	6
Lafayette	44	5
Superior	23	3
Longmont	21	2
Unincorporated Boulder County	122	14
Other city in Boulder County	10	1
Metro Denver	94	11
Other area in Colorado	31	3
Out of state	63	7
Out of country	5	1
Total	883	100

16. What is the highest level of education that you have completed? (***Check one response***)

	Respondents	
	Number	Percent
8th grade or less	2	< 1
some high school	5	< 1
high school graduate or GED	34	4
business / trade school, some college	71	8
college graduate	307	35
some graduate school	95	11
masters degree	245	28
doctoral / professional degree	119	14
Total	878	100

Month of Interview	Number	Percent
July	406	43
August	471	49
September	74	8
Total	951	100

Time of Interview	Number	Percent
am	416	44
midday	307	32
pm	228	24
Total	951	100

Day of Interview	Number	Percent
Monday	76	8
Tuesday	84	9
Wednesday	99	10
Thursday	100	11
Friday	85	9
Saturday	228	24
Sunday	279	29
Total	951	100

Location of Interview	Number	Percent
East Boulder – Gunbarrel	53	6
East Boulder – Teller Farm	21	2
Dry Creek	79	8
Bobolink	72	8
South Boulder Creek at EBCC	31	3
Marshall Mesa	66	7
Greenbelt Plateau	12	1
Doudy Draw	18	2
South Mesa	107	11
Shanahan Ridge	52	5
Chautauqua	216	23
Sanitas	64	7
Foothills	15	2
Sage	44	5
Eagle	53	6
Gregory Canyon	48	5
Total	951	100

Version of Survey	Number	Percent
Open-ended norms questions	396	42
Closed-ended norms questions	554	58
Total	950	100

Appendix B

PCI Graphs for Selected Sub-Groups of Respondents

Figure B1. PCI acceptability norms for "indirect" human-dog interactions: Frequency of walking dogs at OSMP

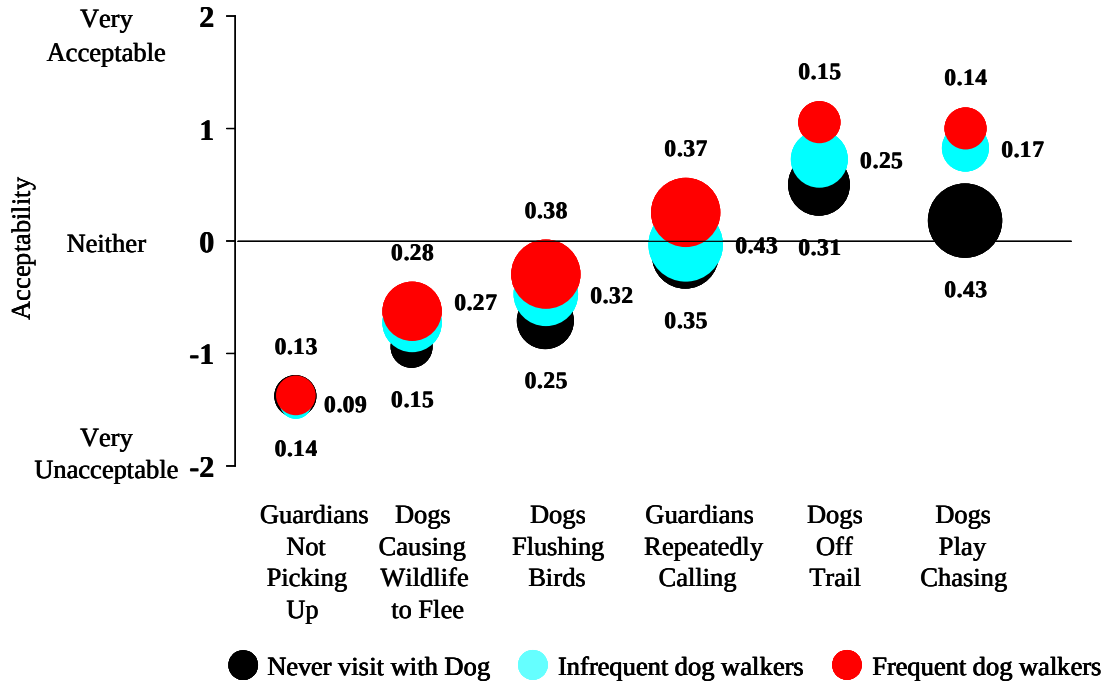


Figure B2. PCI acceptability norms for "direct" human-dog interactions: Frequency of walking dogs at OSMP

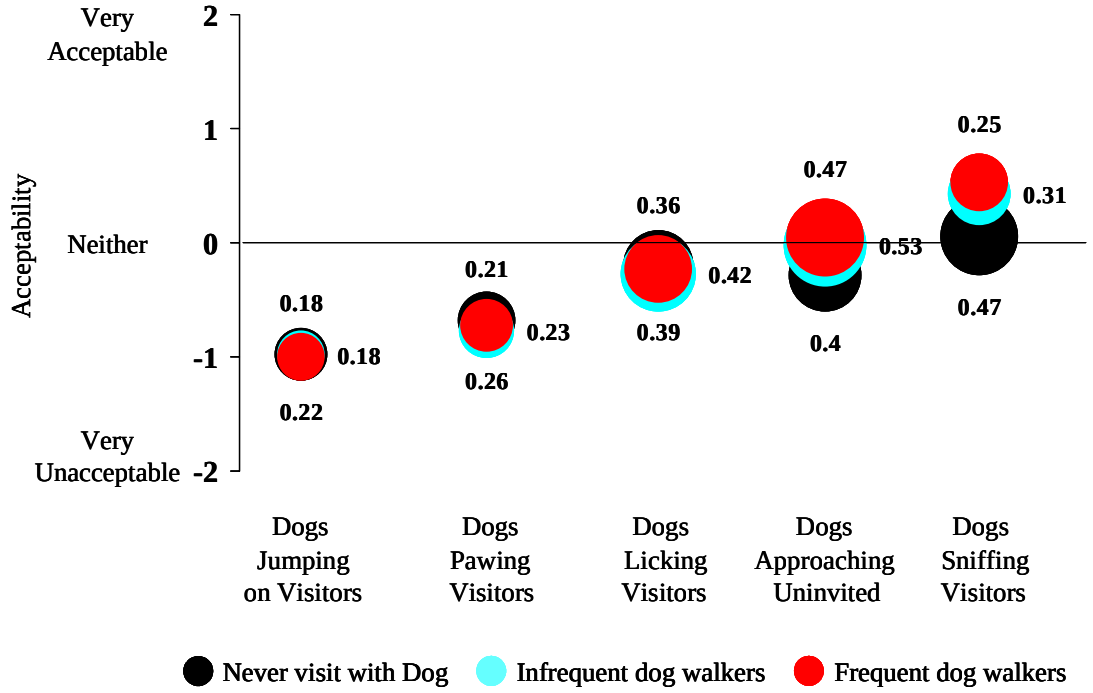


Figure B3. PCI acceptability norms for "indirect" human-dog interactions: Walking dog on day of interview

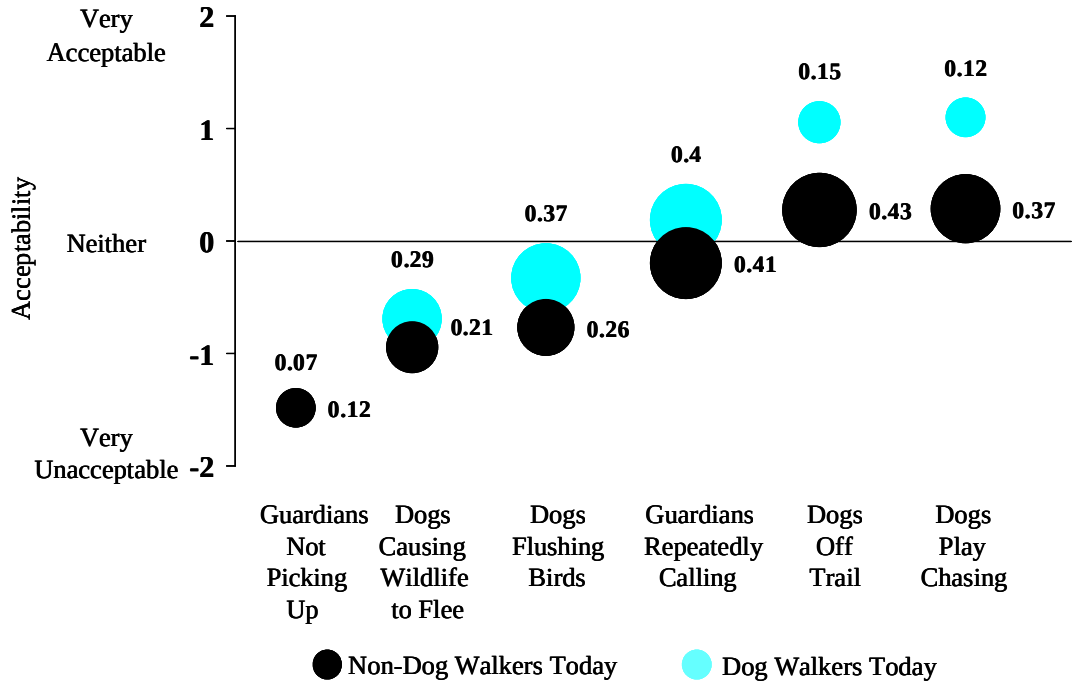


Figure B4. PCI acceptability norms for "direct" human-dog interactions: Walking dog on day of interview

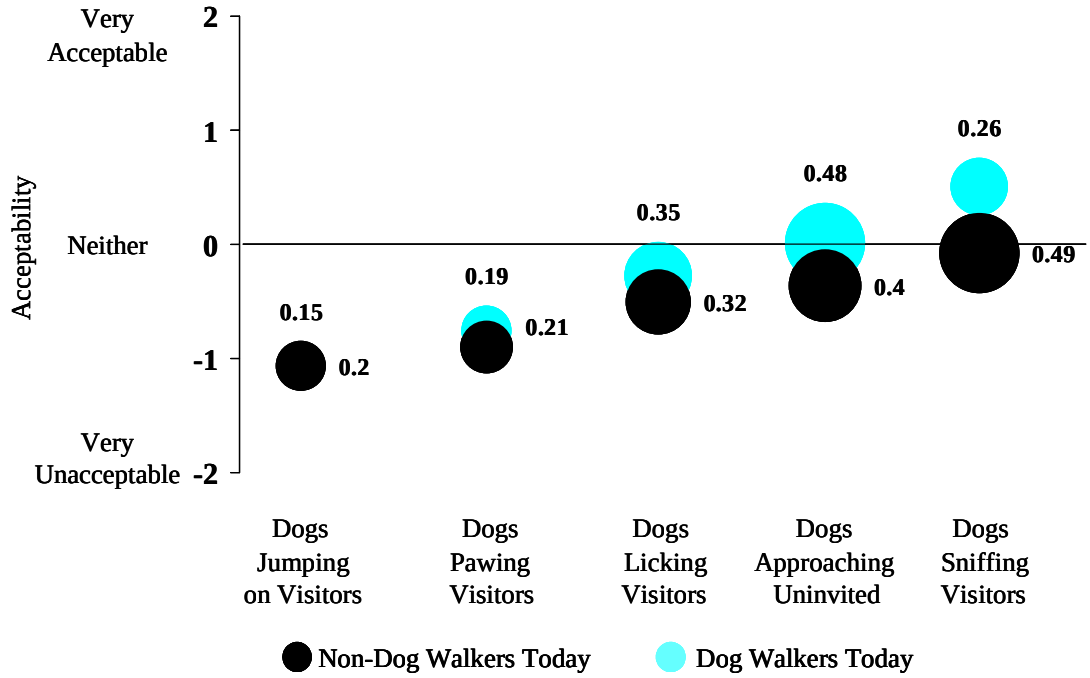


Figure B5. PCI acceptability norms for "indirect" human-dog interactions: Years visiting OSMP

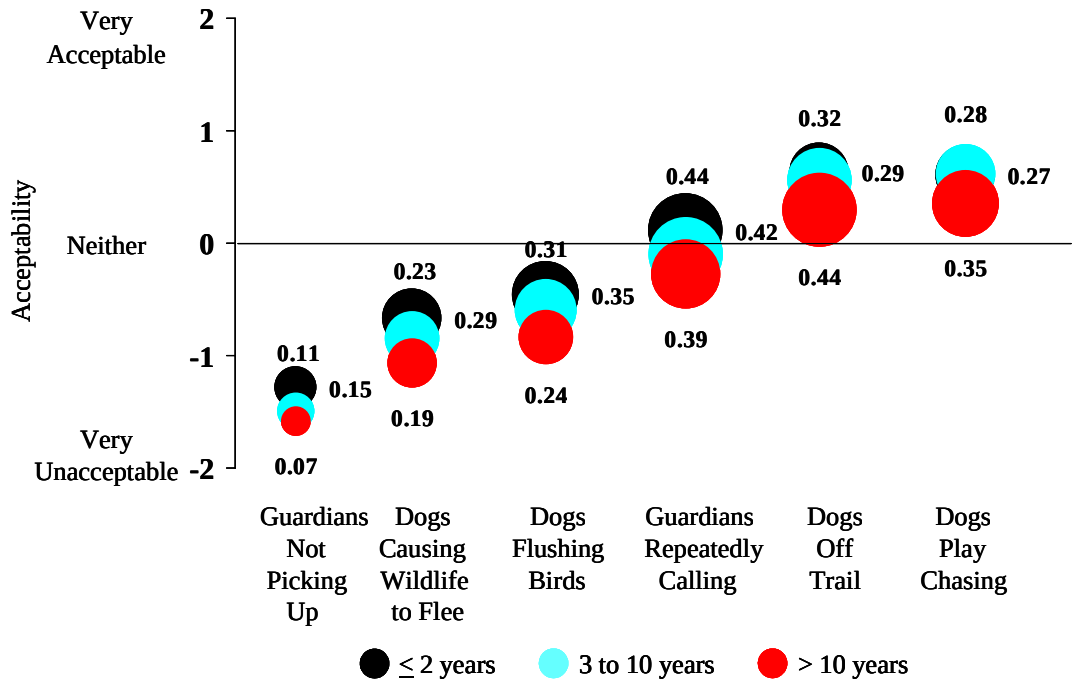
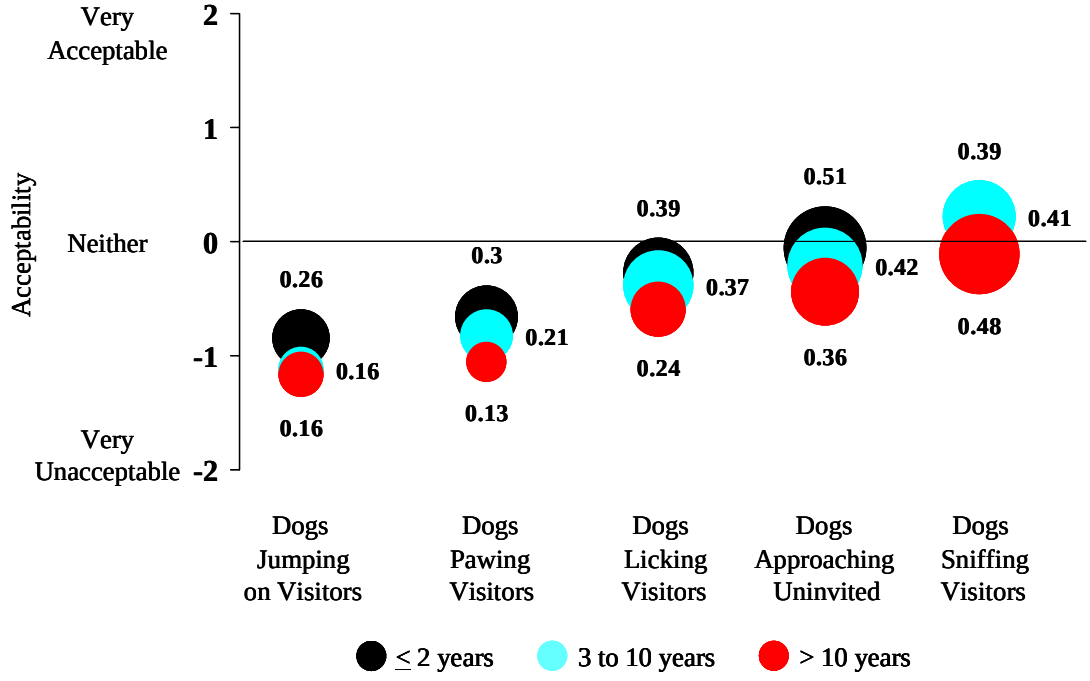


Figure B6. PCI acceptability norms for "direct" human-dog interactions: Years visiting OSMP



Appendix C

Multivariate Cluster Analyses

Visitor Clusters: Normative Tolerances

To provide a multivariate perspective on the normative acceptability ratings, we conducted a series of cluster analyses (Table C1). Cluster analysis allows classification of individuals into smaller more homogeneous groups based on patterns of responses across the 11 acceptability rating variables. The variables included in these analyses were the percent of time the norm had been exceeded for each of the acceptability evaluations. These variables were coded as 0 (norm not exceeded) and 1 (norm exceeded). A series of cluster analyses ranging from 2 to 6 group solutions showed that the 4-group solution provided the best fit for the data. To validate this solution, we randomly sorted the data and conducted a cluster analysis after each of 3 random sorts. These additional analyses supported the solution identifying four distinct groups of individuals.

Across all indirect and direct human-dog interaction variables, 60% of all respondents never had their norm exceeded (cluster 1). Cluster 2 contained individuals whose norm had been exceeded primarily for the indirect interactions (16%), while cluster 3 included respondents whose norm had mostly been exceeded for the direct interaction variables (12%). The final cluster reflected those individuals who norm had been consistently exceeded across all 11 acceptability evaluations (12%).

Tables C2 through C7 examine the relationships between the 4-group cluster solution and selected independent variables. We used Cramer's *V* to compare the strength of the relationships. A value of .1 on this effect size statistic can be considered a "minimal" relationship (Vaske, Gliner, & Morgan, 2002). A Cramer's *V* of .3 is considered "typical" and effect sizes of .5 or greater are "substantial" relationships.

Table C1. Visitor clusters: Normative tolerances

	Cluster 1 Norm Never Exceeded	Cluster 2 Mostly Indirect	Cluster 3 Mostly Direct	Cluster 4 Norm Always Exceeded
Indirect interaction				
Owners not picking up after their dogs	0	1	1	1
Dogs causing wildlife to flee	0	0	0	1
Dogs flushing birds	0	0	0	1
Owners repeatedly calling their dogs	0	1	0	1
Dogs off trail	0	1	0	1
Dogs "play" chasing another dog	0	0	0	1
Direct interaction				
Dogs jumping on a visitor	0	0	1	1
Dogs pawing a visitor	0	0	1	1
Dogs licking a visitor	0	0	0	1
Dogs approaching uninvited	0	1	1	1
Dogs sniffing a visitor	0	0	0	1
Percent of sample	60%	16%	12%	12%

Coding: 0 = Norm not exceeded 1 = Norm exceeded

The variables of sex, age, education and one of the place of residence variables (i.e., within Boulder city limits vs. outside city limits) did not vary statistically by norm tolerance clusters ($\chi^2 \leq 21.81$, $p \geq .058$ in all cases, Table C2). The effect sizes for these relationships were minimal (Cramer's $V = .097$ to .116). This implies, for example, that females were no more likely to have their norm exceeded than males. Individuals with college graduate degrees were no more likely than those with a high school education to have their norm exceeded.

For the second place of residence variable (i.e., within Boulder city limits, within Boulder County, outside Boulder county), there was a statistical difference among the four clusters ($\chi^2 = 24.43$, $p < .001$). Individuals who live outside of Boulder County were less likely to have their norm exceed (70%) compared to those living within Boulder County (45%) or within the city limits of Boulder (55%). Although these distributions varied statistically, the effect size was only .143; suggesting that there was not a strong relationship.

Table C2. Demographics by norm tolerance clusters [1]

	Norm Never Exceeded	Mostly Indirect	Mostly Direct	Norm Always Exceeded	χ^2	*p*-value	Cramer's *V*
Sex					6.51	.089	.106
Male	62	18	9	11			
Female	57	14	14	16			
Age					21.81	.240	.116
< 20	69	12	11	8			
21 to 30	62	20	6	12			
31 to 40	56	12	20	12			
41 to 50	60	17	12	11			
51 to 60	57	15	11	17			
61 to 70	54	25	7	14			
> 70	50	12	0	38			
Mean age	40.30	40.95	40.01	42.82			
Education					17.33	.299	.097
High school or less	69	19	6	6			
Some college	68	5	12	15			
College graduate	60	19	12	9			
Some graduate school	62	14	11	13			
Masters degree	57	15	11	17			
Doctoral / professional degree	49	16	17	18			
Place of Residence					7.48	.058	.114
Within Boulder city limits	55	17	11	17			
Outside city limits	63	16	12	9			
					24.43	< .001	.143
Within Boulder city limits	55	17	11	17			
Within Boulder County	45	23	15	17			
Outside Boulder County	70	13	10	7			

1. Cell entries are row percentages

Three frequency of visitation variables were examined (Table C3). Significant differences were observed between the four cluster groups and (a) number of years visiting OSMP ($\chi^2 = 48.61$, $p < .001$), (b) number of visits during the past 12 months ($\chi^2 = 47.63$, $p < .001$), and (c) number of times visiting OSMP locations during the past month ($\chi^2 = 32.54$, $p = .019$). In general, for all three visitation variables, those with more prior visitation experience were more likely to have their norm exceeded. The effect sizes for these relationships were again in the minimal range (Cramer's $V = .133$ to .160).

Table C3. Frequency of visitation by norm tolerance clusters [1]

	Norm Never Exceeded	Mostly Indirect	Mostly Direct	Norm Always Exceeded	χ^2	*p*-value	Cramer's *V*
Number of years visiting OSMP					48.61	< .001	.160
1st year	90	6	2	2			
1 to 2 years	65	16	11	8			
3 to 5 years	60	16	12	12			
6 to 10 years	64	12	10	14			
11 to 20 years	49	22	13	16			
21 to 30 years	43	25	16	16			
More than 30 years	44	13	26	17			
Number of visits during past 12 months					47.63	< .001	.159
1 to 10 visits	80	11	5	4			
11 to 30 visits	54	22	8	16			
31 to 90 visits	52	17	15	16			
91 to 180 visits	48	17	20	15			
181 to 365 visits	59	14	15	12			
Number of times visited OSMP during past month					32.54	.019	.133
1 visit	77	10	5	8			
2 to 3 visits	62	21	8	9			
4 to 5 visits	54	21	11	14			
6 to 10 visits	52	17	18	13			
11 to 20 visits	52	16	14	18			
21 to 31 visits	62	11	14	13			
More than 31 visits	60	10	20	10			

1. Cell entries are row percentages

Two of the four dog guardian variables were statistically related to membership in the four clusters (Table C4). Individuals who are currently dog guardians were less likely to have their norm exceeded than those who were not dog guardians ($\chi^2 = 33.85$, $p < .001$). Respondents visiting with two or more dogs on the day they were interviewed were also less likely to have their norm exceeded ($\chi^2 = 30.34$, $p < .001$). The number of dogs currently owned and the frequency of walking dogs at OSMP were not statistically related to the norm tolerance clusters. Again, however, the strength of all of these relationships can be characterized as minimal.

Table C4. Dog guardian indicators by norm tolerance clusters [1]

	Norm Never Exceeded	Mostly Indirect	Mostly Direct	Norm Always Exceeded	χ^2	*p*-value	Cramer's *V*
Are you currently a dog guardian?					33.85	< .001	.234
No	52	19	10	19			
Yes	67	13	14	6			
Number of dogs currently owned					7.70	.261	.102
1	63	15	15	7			
2	74	9	13	4			
3+	86	7	7	0			
Number of dogs with you on today's visit					30.34	< .001	.156
No dogs	54	19	11	16			
1 dog	67	14	14	5			
2+ dogs	74	10	13	3			
Frequency of walking dogs at OSMP					5.59	.471	.093
Never	72	11	9	8			
1 to 4 visits per month	60	18	15	7			
2+ visits per week	69	11	15	5			

1. Cell entries are row percentages

Three of the six activity participation variables (i.e., walking dog, walking / hiking, bird watching) were statistically related to the norm tolerance clusters ($\chi^2 \geq 9.90$, $p < .019$ in all cases). For example, more walkers / hikers always had their norm exceeded than those not participating in these activities (Table C5). Those who were bird watching were more likely to have their norm exceeded than those not engaged in this activity. Although these differences were statistically significant, the effect sizes were minimal. Running, bicycling and wildlife viewing were not related to the extent to which the norm was exceeded.

Table C5. Activities by norm tolerance clusters [1]

	Norm Never Exceeded	Mostly Indirect	Mostly Direct	Norm Always Exceeded	χ^2	*p*-value	Cramer's *V*
Walking Dog					15.81	.001	.156
No	57	17	11	15			
Yes	66	13	15	6			
Walking / Hiking					12.60	.006	.144
No	60	16	16	8			
Yes	59	16	9	16			
Running					5.93	.115	.102
No	62	14	11	13			
Yes	52	21	15	12			
Bicycling					5.91	.116	.093
No	59	16	13	12			
Yes	76	6	6	12			
Bird Watching					9.90	.019	.136
No	61	15	12	12			
Yes	41	28	8	23			
Wildlife Viewing					2.55	.466	.067
No	61	15	12	12			
Yes	52	23	9	16			

1. Cell entries are row percentages

All nine belief statements regarding off leash dogs were statistically related to cluster membership ($\chi^2 \geq 13.11$, $p < .041$). For five of these relationships, the Cramer's *Vs* were greater than .3, suggesting a "typical" strength of relationship (Table C6). Individuals who agreed with the statement "the behavior of off leash dogs is a problem at OSMP areas" were more likely to have their norm always exceeded (44%) than those who disagreed (3%). Those who agreed that "I do not think that there are any real impacts from off leash dogs at OSMP areas" were less likely to have their norm exceeded (81% norm never exceeded) than those who disagreed with the statement (37% norm never exceeded). Respondents who disagreed with the statement "Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them" were less likely to have their norm exceeded (67% norm never exceeded) than those who agreed (15% norm never exceeded). Individuals who enjoyed watching dogs off leash were less likely to have their norm exceeded (73% norm never exceeded) than those who disagreed (27% norm never exceeded).

Table C7 shows the relationships between perceived human-dog interaction problems and the norm tolerance clusters. All 11 relationships were statistically significant at $p < .001$. Individuals who perceived the indirect and direct interaction issues to be problematic, were more likely to have their norms exceeded. For example, those who felt that dogs off trail was an "extreme problem," were more likely to have their norm exceeded (23% norm never exceeded) than those who felt that this behavior was "not at all a problem" (77% norm never exceeded). Forty-nine percent of respondents who felt that dogs sniffing a visitor was an extreme problem, always had their norm exceeded, compared to only 5% of those who thought that this behavior was not a problem.

Table C6. Beliefs about off leash dogs by norm tolerance clusters [1]

	Norm Never Exceeded	Mostly Indirect	Mostly Direct	Norm Always Exceeded	χ^2	*p*-value	Cramer's *V*
Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them					106.88	< .001	.323
Disagree	67	15	12	6			
Neutral	43	16	8	33			
Agree	15	22	18	45			
The behavior of off leash dogs is a problem at OSMP areas					173.02	< .001	.403
Disagree	76	12	9	3			
Neutral	55	23	15	7			
Agree	18	21	17	44			
I do ***not*** think that there are any real impacts from off leash dogs at OSMP areas					118.10	< .001	.312
Disagree	37	22	16	25			
Neutral	71	14	12	3			
Agree	81	9	6	4			
I enjoy watching dogs off leash at OSMP areas					112.19	< .001	.314
Disagree	27	26	12	36			
Neutral	50	20	11	19			
Agree	73	11	13	3			
It's OK that off leash dogs use OSMP areas as long as they do ***not*** affect me					50.49	< .001	.229
Disagree	36	19	10	35			
Neutral	59	16	14	11			
Agree	65	15	12	8			
Most dog owners are responsible individuals who keep their dogs under control at OSMP areas					82.31	< .001	.308
Disagree	20	12	12	56			
Neutral	45	21	17	17			
Agree	67	15	11	7			
Dog owners who ***cannot*** control their dogs off leash ***should not*** be allowed to visit OSMP areas with their dogs off leash					27.74	< .001	.146
Disagree	69	13	9	9			
Neutral	83	5	9	3			
Agree	54	18	13	15			
It is OK for a visitor to say something to a dog owner who does ***not*** have his or her dog under control					13.11	.041	.100
Disagree	69	9	9	13			
Neutral	73	5	10	12			
Agree	57	18	12	13			
It bothers me when dog owners do ***not*** pick up after their dogs					22.83	.001	.119
Disagree	79	0	21	0			
Neutral	79	3	15	3			
Agree	56	17	12	14			

1. Cell entries are row percentages

Table C7. Perceived problems by norm tolerance clusters [1]

	Norm Never Exceeded	Mostly Indirect	Mostly Direct	Norm Always Exceeded	χ^2	*p*-value	Cramer's *V*
Indirect interaction							
Owners not picking up after their dogs					30.22	< .001	.124
Not at all a problem	83	5	7	5			
Slight problem	68	13	11	8			
Moderate problem	67	17	11	5			
Extreme problem	53	17	13	17			
Dogs causing wildlife to flee					33.41	< .001	.135
Not at all a problem	68	13	12	7			
Slight problem	69	14	11	6			
Moderate problem	63	9	16	12			
Extreme problem	50	22	10	18			
Dogs flushing birds					32.32	< .001	.138
Not at all a problem	70	13	11	6			
Slight problem	65	12	14	9			
Moderate problem	60	19	11	10			
Extreme problem	46	20	11	23			
Owners repeatedly calling their dogs					88.45	< .001	.226
Not at all a problem	80	10	8	2			
Slight problem	61	16	16	7			
Moderate problem	48	21	9	22			
Extreme problem	31	20	13	36			
Dogs off trail					146.41	< .001	.297
Not at all a problem	77	9	13	2			
Slight problem	50	23	15	12			
Moderate problem	33	28	5	34			
Extreme problem	23	17	9	51			
Dogs "play" chasing another dog					67.58	< .001	.195
Not at all a problem	71	13	12	4			
Slight problem	52	17	14	17			
Moderate problem	39	26	9	26			
Extreme problem	44	17	4	35			
Direct interaction							
Dogs jumping on a visitor					65.98	< .001	.184
Not at all a problem	80	16	3	1			
Slight problem	71	13	10	6			
Moderate problem	60	13	17	10			
Extreme problem	45	20	13	22			
Dogs pawing a visitor					64.11	< .001	.184
Not at all a problem	67	12	7	4			
Slight problem	64	18	15	3			
Moderate problem	60	13	12	15			
Extreme problem	41	20	14	25			
Dogs licking a visitor					81.78	< .001	.216
Not at all a problem	79	9	9	3			
Slight problem	56	21	13	9			
Moderate problem	52	16	16	16			
Extreme problem	34	22	12	32			
Dogs approaching uninvited					159.17	< .001	.301
Not at all a problem	85	7	7	1			
Slight problem	65	14	15	6			
Moderate problem	38	24	20	18			
Extreme problem	31	23	6	40			
Dogs sniffing a visitor					100.05	< .001	.256
Not at all a problem	73	12	10	5			
Slight problem	58	19	15	8			
Moderate problem	33	23	16	28			
Extreme problem	35	11	5	49			

1. Cell entries are row percentages

The *Multivariate* analyses of the norm acceptability ratings suggested the following conclusions:

- Cluster analyses identified four norm tolerance segments:
  - √ 60% of all respondents *never* had any of their norms exceeded
  - √ 16% had their norms exceeded for *indirect* interactions
  - √ 12% had their norms exceeded for *direct* interaction variables
  - √ 12% had their norms exceeded for *all* 11 acceptability evaluations
- Demographic, visitation pattern and activity participation variables that were statistically related to membership in the four clusters included:
  - √ one *demographic* indicator (place of residence) (within Boulder city limits vs. within Boulder County vs. Outside Boulder County)
  - √ all three *frequency of visitation* variables (number of years visited, number of visits during past 12 months, number of visits during past month)
  - √ two *dog guardian* variables (currently a dog guardian, number of dogs on today's visit)
  - √ three *activity participation* variables (walking dog, walking / hiking, bird watching)

  The strength of all these relationships, however, was minimal.
- All nine *beliefs* statements regarding *off leash dogs* were statistically related to norm cluster membership and the effect sizes were generally larger.
- All 11 relationships between *perceived human-dog interaction problems* and the norm tolerance clusters were statistically significant.

Off Leash Dog / Human Interactions at Boulder Open Space and Mountain Parks: Supplemental Analyses

Sponsored by the City of Boulder Open Space and Mountain Parks and conducted by

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Executive Summary

This report contains analyses that supplement the information in:

Vaske, J. J., & Donnelly, M. P. (2007). Visitor tolerances and standards for off leash dogs at Boulder Open Space and Mountain Parks. (HDNRU Report No. 75). Report for Boulder Open Space and Mountain Parks. Fort Collins: Colorado State University, Human Dimensions in Natural Resources Unit.

Vaske, J. J., & Donnelly, M. P. (2007). Perceived conflict with off leash dogs at Boulder Open Space and Mountain Parks. (HDNRU Report No. 76). Report for Boulder Open Space and Mountain Parks. Fort Collins: Colorado State University, Human Dimensions in Natural Resources Unit.

Tables presented in this document compare:

- Guardians vs. Non-guardians
- Guardians (Non-walkers – Walkers) vs. Non-guardians
- Frequent vs. Infrequent dog walkers at OSMP

Respondents' open-ended comments on the survey are listed at the end of the document.

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List of Tables

Dog Guardians vs. Non-Dog Guardians

Table 1. Dog Guardian

Are you currently a dog guardian?	Number	Percent
No	431	46
Yes	509	54
Total	940	100

Table 2. Number of dogs currently under your protection

Number of dogs Under your protection	Respondents Number	Percent
1	364	71
2	121	24
3	21	4
4	3	1
Total	509	100

Table 3. Frequency of visiting OSMP locations with your dog

	Respondents Number	Percent
Never	78	15
Once a month	55	11
Twice a month	32	6
3 times per month	18	3
4 times per month (once a week)	41	8
2 times per week	59	12
3 to 4 times per week	89	18
5 to 6 times per week	68	13
Daily	69	14
Total	509	100

Table 4. Number of dogs with you on today's visit

	Respondents	
	Number	Percent
No dogs	495	56
1 dog	283	32
2 dogs	93	10
3 dogs	11	1
4 dogs	4	< 1
5 dogs	3	< 1

Table 5. Leashed versus unleashed dogs on today's visit

	Respondents	
Were the dogs that you had with you today:	Number	Percent
Leashed ***all*** of the time?	72	17
Leashed ***part*** of the time?	237	55
Leashed ***none*** of the time?	76	18
Did not have a dog with me	258	48

Table 6. Prior visits to OSMP

	Dog Guardian				
	No (Mean)	Yes (Mean)	*t*-value	*p*-value	eta
Number of years visiting OSMP	11.10	10.75	0.50	.616	.017
Number of visits during past 12 months	72.65	109.69	5.41	< .001	.171
Number of times visited OSMP during past month	8.47	11.90	5.22	< .001	.166

Table 7. Average number of times behaviors were *personally observed* on a typical visit

	Dog Guardian				
	No (Mean)	Yes (Mean)	*t*-value	*p*-value	eta
Dogs off trail	2.87	3.02	0.99	.325	.034
Owners repeatedly calling or yelling at their dogs	1.88	1.60	2.24	.025	.078
Dogs “play” chasing another dog	1.75	2.46	5.18	< .001	.175
Dogs flushing birds	0.60	0.44	1.97	.049	.070
Dogs causing wildlife to flee	0.69	0.50	2.18	.029	.078
Dogs approaching uninvited	2.14	2.02	0.94	.349	.033
Dogs jumping on a visitor	0.89	0.70	1.96	.050	.069
Dogs licking a visitor	0.99	0.75	2.47	.014	.087
Dogs pawing a visitor	0.68	0.45	2.72	.007	.096
Dogs sniffing a visitor	1.93	2.29	2.57	.010	.089
Owners not picking up after their dogs	1.79	1.39	3.10	.002	.108

Table 8. Acceptability ratings for behaviors

	Dog Guardian				
	No (%)	Yes (%)	χ^2	*p*-value	Cramer's *V*
Dogs off trail			70.44	< .001	.284
Unacceptable	36	15			
Neither	25	19			
Acceptable	39	66			
Owners repeatedly calling or yelling at their dogs			28.94	< .001	.185
Unacceptable	50	32			
Neither	23	32			
Acceptable	27	36			
Dogs "play" chasing another dog			52.22	< .001	.249
Unacceptable	30	14			
Neither	30	23			
Acceptable	40	63			
Dogs flushing birds			30.58	< .001	.193
Unacceptable	68	49			
Neither	17	29			
Acceptable	15	22			
Dogs causing wildlife to flee			16.72	< .001	.142
Unacceptable	72	60			
Neither	14	24			
Acceptable	14	16			
Dogs approaching uninvited			28.49	< .001	.185
Unacceptable	55	37			
Neither	21	29			
Acceptable	24	34			
Dogs jumping on a visitor			5.90	.052	.084
Unacceptable	76	70			
Neither	12	18			
Acceptable	11	12			
Dogs licking a visitor			26.91	< .001	.181
Unacceptable	59	41			
Neither	22	33			
Acceptable	19	26			
Dogs pawing a visitor			5.66	.059	.083
Unacceptable	70	62			
Neither	19	23			
Acceptable	11	15			
Dogs sniffing a visitor			56.56	< .001	.260
Unacceptable	45	22			
Neither	27	30			
Acceptable	28	48			
Owners not picking up after their dogs			2.47	.291	.054
Unacceptable	87	84			
Neither	7	9			
Acceptable	6	7			

Table 9. Maximum norm tolerances for behaviors and percent of time norm was exceeded

	Maximum Norm Tolerances for Behaviors		Percent of Time Norm was Exceeded		
	Dog Guardian [1]		Dog Guardian		
	No (Mean)	Yes (Mean)	No (%)	Yes (%)	Entire Sample (%)
Dogs off trail	2.59	3.75	38	18	28
Owners repeatedly calling or yelling at their dogs	1.64	2.37	36	22	28
Dogs “play” chasing another dog	2.10	3.44	21	16	18
Dogs flushing birds	0.66	1.28	19	9	13
Dogs causing wildlife to flee	0.63	1.06	19	14	17
Dogs approaching uninvited	1.51	2.27	45	27	35
Dogs jumping on a visitor	0.52	0.59	32	22	27
Dogs licking a visitor	0.97	1.52	27	12	19
Dogs pawing a visitor	0.57	0.82	23	12	17
Dogs sniffing a visitor	1.72	2.98	36	20	27
Owners not picking up after their dogs	0.40	0.67	56	46	50

1. All mean differences statistically significant at $p \leq .016$

Table 10. Perceived problems associated with each behavior

	Dog Guardian				
	No (%)	Yes (%)	χ^2	*p*-value	Cramer's *V*
Dogs off trail			66.98	< .001	.267
Not at all a problem	39	64			
Slight problem	34	24			
Moderate problem	19	8			
Extreme problem	8	3			
Owners repeatedly calling or yelling at their dogs			33.61	< .001	.190
Not at all a problem	25	33			
Slight problem	34	43			
Moderate problem	27	18			
Extreme problem	14	6			
Dogs "play" chasing another dog			41.11	< .001	.209
Not at all a problem	46	64			
Slight problem	30	24			
Moderate problem	19	8			
Extreme problem	5	4			
Dogs flushing birds			37.64	< .001	.201
Not at all a problem	25	31			
Slight problem	21	29			
Moderate problem	20	24			
Extreme problem	34	16			
Dogs causing wildlife to flee			14.72	< .002	.126
Not at all a problem	21	24			
Slight problem	18	22			
Moderate problem	19	24			
Extreme problem	42	30			
Dogs approaching uninvited			34.91	< .001	.193
Not at all a problem	27	36			
Slight problem	28	35			
Moderate problem	22	18			
Extreme problem	23	11			
Dogs jumping on a visitor			15.23	< .002	.128
Not at all a problem	15	20			
Slight problem	19	25			
Moderate problem	25	25			
Extreme problem	41	30			
Dogs licking a visitor			31.26	< .001	.183
Not at all a problem	28	41			
Slight problem	29	31			
Moderate problem	22	17			
Extreme problem	21	11			
Dogs pawing a visitor			19.70	< .001	.146
Not at all a problem	20	26			
Slight problem	24	28			
Moderate problem	25	27			
Extreme problem	31	19			
Dogs sniffing a visitor			67.66	< .001	.268
Not at all a problem	37	57			
Slight problem	28	30			
Moderate problem	21	9			
Extreme problem	14	4			
Owners not picking up after their dogs			18.53	< .001	.141
Not at all a problem	7	10			
Slight problem	10	14			
Moderate problem	19	26			
Extreme problem	64	50			

Table 11. Beliefs about off leash dogs

	Dog Guardian				
	No (%)	Yes (%)	χ^2	*p*-value	Cramer's *V*
I enjoy watching dogs off leash at OSMP areas			165.83	< .001	.423
Disagree	31	5			
Neutral	32	19			
Agree	37	76			
It's OK that off leash dogs use OSMP areas as long as they do ***not*** affect me			48.46	< .001	.233
Disagree	27	9			
Neutral	19	20			
Agree	54	71			
Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them			103.20	< .001	.336
Disagree	63	91			
Neutral	21	6			
Agree	16	3			
The behavior of off leash dogs is a problem at OSMP areas			98.56	< .001	.331
Disagree	44	74			
Neutral	24	16			
Agree	32	10			
I do ***not*** think that there are any real impacts from off leash dogs at OSMP areas			54.65	< .001	.256
Disagree	54	32			
Neutral	25	25			
Agree	21	43			
Dog owners who ***cannot*** control their dogs off leash ***should not*** be allowed to visit OSMP areas with their dogs off leash			31.15	< .001	.185
Disagree	8	12			
Neutral	7	18			
Agree	85	70			
It is OK for a visitor to say something to a dog owner who does ***not*** have his or her dog under control			0.33	.849	.019
Disagree	6	6			
Neutral	16	15			
Agree	78	79			
Most dog owners are responsible individuals who keep their dogs under control at OSMP areas			49.92	< .001	.236
Disagree	14	4			
Neutral	22	12			
Agree	64	84			
It bothers me when dog owners do ***not*** pick up after their dogs			6.79	.033	.086
Disagree	2	2			
Neutral	5	9			
Agree	93	89			

Table 12. Demographics

	Dog Guardian				
	No (%)	Yes (%)	χ^2	*p*-value	Cramer's *V*
Sex			1.07	.300	.035
Male	46	42			
Female	54	58			
Age			17.33	.008	.142
< 20	4	4			
21 to 30	23	14			
31 to 40	21	26			
41 to 50	23	30			
51 to 60	20	20			
61 to 70	8	5			
> 70	1	1			
Mean age	41.56	42.77			
Education			4.04	.545	.068
High school or less	4	5			
Some college	8	8			
College graduate	36	35			
Some graduate school	9	12			
Masters degree	29	27			
Doctoral or professional degree	14	13			

Dog Guardians (Non-walkers vs. Walkers) vs. Non-Dog Guardians

Table 13. Walk Dogs at OSMP Areas

Do you walk your dog at OSMP areas?	Number	Percent
No	431	46
Yes	78	8
Do not own a dog	431	46
Total	940	100

Table 14. Prior visits to OSMP

	Do you walk your dog at OSMP areas?					
	No (Mean)	Yes (Mean)	Do Not Own a Dog (Mean)	*F*-value	*p*-value	eta
Number of years visiting OSMP	6.79[a]	11.44[b]	11.10[b]	6.29	.002	.117
Number of visits during past 12 months	23.91[a]	125.01[b]	72.65[c]	46.59	< .001	.301
Number of times visited OSMP during past month	4.49[a]	13.22[b]	8.47[c]	39.23	< .001	.279

Table 15. Average number of times behaviors were *personally observed* on a typical visit

	Do you walk your dog at OSMP areas?					
	No (Mean)	Yes (Mean)	Do Not own a Dog (Mean)	*F*-value	*p*-value	eta
Dogs off trail	2.01 [a]	3.20 [b]	2.87 [b]	9.46	< .001	.147
Owners repeatedly calling or yelling at their dogs	1.10 [a]	1.69 [b]	1.88 [b]	5.86	.003	.117
Dogs "play" chasing another dog	1.21 [a]	2.68 [b]	1.75 [a]	30.22	< .001	.259
Dogs flushing birds	0.18 [a]	0.48 [b]	0.60 [b]	4.08	.017	.099
Dogs causing wildlife to flee	0.29 [a]	0.54 [ab]	0.69 [b]	3.77	.023	.095
Dogs approaching uninvited	1.41 [a]	2.13 [b]	2.14 [b]	4.87	.008	.107
Dogs jumping on a visitor	0.30 [a]	0.77 [b]	0.89 [b]	5.63	.004	.115
Dogs licking a visitor	0.49 [a]	0.80 [ab]	0.99 [b]	4.54	.011	.104
Dogs pawing a visitor	0.42 [a]	0.45 [a]	0.68 [b]	3.89	.021	.096
Dogs sniffing a visitor	1.38 [a]	2.45 [b]	1.93 [c]	12.04	< .001	.168
Owners not picking up after their dogs	1.17 [a]	1.43 [a]	1.79 [b]	5.53	.004	.114

Table 16. Acceptability ratings for behaviors

	Do you walk your dog at OSMP areas?					
	No (%)	Yes (%)	Do Not Own a Dog (%)	χ^2	*p*-value	Cramer's *V*
Dogs off trail				74.99	< .001	.206
Unacceptable	22	14	36			
Neither	23	18	25			
Acceptable	55	68	39			
Owners repeatedly calling their dogs				34.31	< .001	.142
Unacceptable	40	30	50			
Neither	36	31	23			
Acceptable	24	39	27			
Dogs "play" chasing another dog				75.97	< .001	.208
Unacceptable	34	11	30			
Neither	25	22	30			
Acceptable	41	67	40			
Dogs flushing birds				36.97	< .001	.151
Unacceptable	63	46	68			
Neither	21	31	17			
Acceptable	16	23	15			
Dogs causing wildlife to flee				20.33	< .001	.110
Unacceptable	69	59	72			
Neither	22	24	14			
Acceptable	9	17	14			
Dogs approaching uninvited				31.45	< .001	.137
Unacceptable	46	35	55			
Neither	26	30	21			
Acceptable	28	35	24			
Dogs jumping on a visitor				5.95	.203	.060
Unacceptable	70	70	77			
Neither	17	18	12			
Acceptable	13	12	11			
Dogs licking a visitor				27.30	< .001	.129
Unacceptable	37	41	59			
Neither	36	33	22			
Acceptable	27	26	19			
Dogs pawing a visitor				5.99	.200	.060
Unacceptable	65	62	70			
Neither	20	23	19			
Acceptable	15	15	11			
Dogs sniffing a visitor				62.93	< .001	.193
Unacceptable	32	20	45			
Neither	33	30	27			
Acceptable	35	50	28			
Owners not picking up after their dogs				2.66	.615	.040
Unacceptable	82	84	87			
Neither	11	9	7			
Acceptable	7	7	6			

Table 17. Maximum norm tolerances for behaviors

	Maximum Norm Tolerances for Behaviors [1]					
	Do you walk your dog at OSMP areas?					
	No (Mean)	Yes (Mean)	Do Not Own a Dog (Mean)	*F*-value	*p*-value	eta
Dogs off trail	2.84 [a]	3.89 [b]	2.59 [a]	30.76	< .001	.272
Owners repeatedly calling or yelling at their dogs	1.95 [ab]	2.44 [a]	1.64 [b]	15.81	< .001	.201
Dogs "play" chasing another dog	2.48 [a]	3.59 [b]	2.10 [a]	40.58	< .001	.316
Dogs flushing birds	1.36 [a]	1.27 [a]	0.66 [b]	12.97	< .001	.186
Dogs causing wildlife to flee	1.13 [a]	1.05 [a]	0.63 [b]	6.81	.001	.135
Dogs approaching uninvited	1.83 [ab]	2.33 [a]	1.51 [b]	14.06	< .001	.193
Dogs jumping on a visitor	0.74 [ab]	0.80 [a]	0.52 [b]	3.81	.023	.101
Dogs licking a visitor	1.40 [ab]	1.54 [a]	0.97 [b]	8.77	< .001	.154
Dogs pawing a visitor	0.74 [ab]	0.83 [a]	0.57 [b]	2.96	.052	.090
Dogs sniffing a visitor	2.33 [ab]	3.08 [a]	1.72 [b]	35.20	< .001	.298
Owners not picking up after their dogs	0.47 [ab]	0.70 [a]	0.40 [b]	4.77	.009	.113

Table 18. Percent of time norm was exceeded

	Percent of Time Norm was Exceeded						
		Do you walk your dog at OSMP areas					
	Entire Sample	No (%)	Yes (%)	Do Not Own a Dog (%)	χ^2	*p*-value	Cramer's *V*
Dogs off trail	28	20	18	38	38.12	< .001	.224
Owners repeatedly calling or yelling at their dogs	28	19	22	36	18.34	< .001	.157
Dogs "play" chasing another dog	18	17	15	21	3.40	.183	.069
Dogs flushing birds	13	8	9	19	16.50	< .001	.152
Dogs causing wildlife to flee	17	15	14	19	3.18	.204	.066
Dogs approaching uninvited	35	30	27	45	24.99	< .001	.186
Dogs jumping on a visitor	27	19	23	32	10.31	.006	.119
Dogs licking a visitor	19	12	12	27	27.17	< .001	.195
Dogs pawing a visitor	17	15	12	23	13.57	.001	.138
Dogs sniffing a visitor	27	26	19	36	24.52	< .001	.186
Owners not picking up after their dogs	50	42	47	56	7.29	.026	.100

Table 19. Perceived problems associated with each behavior

	Do you walk your dog at OSMP areas?					
	No (%)	Yes (%)	Do Not Own a Dog (%)	χ^2	*p*-value	Cramer's *V*
Dogs off trail				78.69	< .001	.203
Not at all a problem	54	66	39			
Slight problem	26	24	34			
Moderate problem	10	8	19			
Extreme problem	10	2	8			
Owners repeatedly calling or yelling at their dogs				39.10	< .001	.144
Not at all a problem	24	35	25			
Slight problem	42	43	34			
Moderate problem	25	16	27			
Extreme problem	9	6	14			
Dogs "play" chasing another dog				55.16	< .001	.170
Not at all a problem	51	67	46			
Slight problem	23	24	30			
Moderate problem	17	6	19			
Extreme problem	9	3	5			
Dogs flushing birds				40.87	< .001	.147
Not at all a problem	31	31	25			
Slight problem	27	29	21			
Moderate problem	19	25	20			
Extreme problem	23	15	34			
Dogs causing wildlife to flee				15.63	.016	.092
Not at all a problem	27	24	21			
Slight problem	19	23	18			
Moderate problem	26	23	19			
Extreme problem	28	30	42			
Dogs approaching uninvited				39.46	< .001	.144
Not at all a problem	28	38	27			
Slight problem	36	35	28			
Moderate problem	19	17	22			
Extreme problem	17	10	23			
Dogs jumping on a visitor				16.99	.009	.096
Not at all a problem	22	20	15			
Slight problem	27	24	19			
Moderate problem	20	26	25			
Extreme problem	31	30	41			
Dogs licking a visitor				33.42	< .001	.133
Not at all a problem	41	41	28			
Slight problem	34	31	29			
Moderate problem	12	18	22			
Extreme problem	13	10	21			
Dogs pawing a visitor				21.26	.002	.107
Not at all a problem	27	26	20			
Slight problem	33	28	24			
Moderate problem	22	28	25			
Extreme problem	18	18	31			
Dogs sniffing a visitor				70.88	< .001	.192
Not at all a problem	57	57	37			
Slight problem	29	30	28			
Moderate problem	6	10	21			
Extreme problem	8	3	14			
Owners not picking up after their dogs				19.22	.004	.102
Not at all a problem	12	10	7			
Slight problem	14	14	10			
Moderate problem	22	26	19			
Extreme problem	52	50	64			

Table 20. Beliefs about off leash dogs

	Do you walk your dog at OSMP areas?					
	No (%)	Yes (%)	Do Not Own a Dog (%)	χ^2	*p*-value	Cramer's *V*
I enjoy watching dogs off leash at OSMP areas				202.92	< .001	.326
Disagree	17	3	31			
Neutral	37	16	32			
Agree	46	81	37			
It's OK that off leash dogs use OSMP areas as long as they do ***not*** affect me				56.12	< .001	.174
Disagree	18	8	27			
Neutral	14	21	19			
Agree	68	71	54			
Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them				125.69	< .001	.255
Disagree	73	94	63			
Neutral	17	4	21			
Agree	10	2	16			
The behavior of off leash dogs is a problem at OSMP areas				109.26	< .001	.246
Disagree	58	77	44			
Neutral	26	14	24			
Agree	16	9	32			
I do ***not*** think that there are any real impacts from off leash dogs at OSMP areas				59.78	< .001	.183
Disagree	32	32	54			
Neutral	30	24	25			
Agree	38	44	21			
Dog owners who ***cannot*** control their dogs off leash ***should not*** be allowed to visit OSMP areas with their dogs off leash				34.27	< .001	.138
Disagree	7	13	8			
Neutral	15	19	7			
Agree	78	68	85			
It is OK for a visitor to say something to a dog owner who does ***not*** have his or her dog under control				2.67	.614	.037
Disagree	3	7	6			
Neutral	13	15	16			
Agree	84	78	78			
Most dog owners are responsible individuals who keep their dogs under control at OSMP areas				65.67	< .001	.191
Disagree	4	4	14			
Neutral	28	9	22			
Agree	68	87	64			
It bothers me when dog owners do ***not*** pick up after their dogs				10.34	.035	.070
Disagree	0	3	2			
Neutral	10	9	5			
Agree	90	88	93			

Table 21. Demographics

	Do you walk your dog at OSMP areas?					
	No (%)	Yes (%)	Do Not Own a Dog (%)	χ^2	*p*-value	Cramer's *V*
Sex				2.11	.348	.049
Male	48	41	46			
Female	52	59	54			
Age				34.56	.001	.150
< 20	12	2	4			
21 to 30	18	13	23			
31 to 40	24	26	21			
41 to 50	18	32	23			
51 to 60	18	20	19			
61 to 70	5	5	8			
> 70	3	1	2			
Mean age	38.92	43.41	41.56			
Education				29.51	.001	.144
High school or less	13	4	4			
Some college	21	6	8			
College graduate	31	35	35			
Some graduate school	8	13	9			
Masters degree	19	28	29			
Doctoral / professional degree	8	14	15			

Frequency of walking dogs at OSMP

Table 22. Frequency of walking dogs at OSMP

	Number	Percent
Never	78	15
1 to 4 visits per month	146	29
2+ visits per week	285	56
Total	431	100

Table 23. Prior visits to OSMP

	Frequency of Walking Dogs at OSMP [1]					
	Never (Mean)	1 to 4 Visits per Month (Mean)	2+ Visits per Week (Mean)	*F*-value	*p*-value	eta
Number of years visiting OSMP	6.79 [a]	9.45 [a]	12.43 [b]	11.11	< .001	.043
Number of visits during past 12 months	23.91 [a]	40.64 [a]	168.23 [b]	123.58	< .001	.329
Number of times visited OSMP during past month	4.49 [a]	5.69 [a]	17.06 [b]	99.22	< .001	.285

1. Means with different superscripts differ statistically at $p < .05$

Table 24. Average number of times behaviors were *personally observed* on a typical visit

	Frequency of Walking Dogs at OSMP [1]					
	Never (Mean)	1 to 4 Visits per Month (Mean)	2+ Visits per Week (Mean)	*F*-value	*p*-value	eta
Dogs off trail	2.01 [a]	2.97 [b]	3.32 [b]	10.28	< .001	.206
Owners repeatedly calling or yelling at their dogs	1.10 [a]	1.51 [ab]	1.78 [b]	4.97	.007	.146
Dogs "play" chasing another dog	1.21 [a]	2.17 [b]	2.96 [c]	23.64	< .001	.307
Dogs flushing birds	0.18 [a]	0.32 [a]	0.57 [b]	5.87	.003	.160
Dogs causing wildlife to flee	0.29	0.48	0.57	2.08	.127	.095
Dogs approaching uninvited	1.41 [a]	2.15 [b]	2.12 [b]	4.80	.009	.144
Dogs jumping on a visitor	0.32 [a]	0.74 [b]	0.79 [b]	4.51	.012	.139
Dogs licking a visitor	0.49	0.80	0.79	1.67	.190	.086
Dogs pawing a visitor	0.42	0.43	0.47	0.09	.919	.019
Dogs sniffing a visitor	1.38 [a]	2.44 [b]	2.45 [b]	8.57	< .001	.192
Owners not picking up after their dogs	1.17	1.21	1.55	2.54	.080	.105

1. Means with different superscripts differ statistically at $p < .05$

Table 25. Acceptability ratings for behaviors

	Frequency of Walking Dogs at OSMP					
	Never (%)	1 to 4 Visits per Month (%)	2+ Visits per Week (%)	χ^2	*p*-value	Cramer's *V*
Dogs off trail				11.14	.025	.023
Unacceptable	22	17	12			
Neither	22	23	15			
Acceptable	55	60	73			
Owners repeatedly calling or yelling at their dogs				11.76	.019	.113
Unacceptable	40	35	28			
Neither	36	35	29			
Acceptable	24	30	43			
Dogs "play" chasing another dog				24.52	< .001	.177
Unacceptable	34	12	10			
Neither	25	26	21			
Acceptable	41	62	69			
Dogs flushing birds				8.10	.088	.096
Unacceptable	63	51	44			
Neither	21	29	31			
Acceptable	16	20	25			
Dogs causing wildlife to flee				3.86	.425	.064
Unacceptable	69	60	58			
Neither	22	23	25			
Acceptable	9	17	17			
Dogs approaching uninvited				3.61	.462	.064
Unacceptable	46	37	34			
Neither	26	28	31			
Acceptable	28	35	35			
Dogs jumping on a visitor				0.30	.990	.018
Unacceptable	70	69	70			
Neither	17	20	18			
Acceptable	13	11	12			
Dogs licking a visitor				3.48	.480	.063
Unacceptable	37	46	39			
Neither	36	27	35			
Acceptable	27	27	26			
Dogs pawing a visitor				0.55	.969	.025
Unacceptable	65	63	61			
Neither	20	22	24			
Acceptable	15	15	15			
Dogs sniffing a visitor				8.91	.063	.100
Unacceptable	32	24	18			
Neither	33	30	29			
Acceptable	35	46	53			
Owners not picking up after their dogs				1.46	.834	.039
Unacceptable	82	85	83			
Neither	10	10	9			
Acceptable	8	5	8			

Table 26. Maximum norm tolerances for behaviors

	Maximum Norm Tolerances for Behaviors [1]					
	Frequency of Walking Dogs at OSMP					
	Never (Mean)	1 to 4 Visits per Month (Mean)	2+ Visits per Week (Mean)	*F*-value	*p*-value	eta
Dogs off trail	2.84 [a]	3.54 [a]	4.10 [b]	8.41	< .001	.199
Owners repeatedly calling or yelling at their dogs	1.95 [ab]	2.09 [a]	2.63 [b]	4.46	.012	.147
Dogs "play" chasing another dog	2.48 [a]	3.30 [ab]	3.74 [b]	7.14	.001	.188
Dogs flushing birds	1.36	1.23	1.29	0.09	.914	.022
Dogs causing wildlife to flee	1.13	1.02	1.06	0.08	.922	.020
Dogs approaching uninvited	1.83	2.19	2.42	1.77	.172	.094
Dogs jumping on a visitor	0.74	0.74	0.84	0.21	.811	.033
Dogs licking a visitor	1.40	1.51	1.56	0.14	.870	.027
Dogs pawing a visitor	0.74	0.76	0.88	0.34	.713	.042
Dogs sniffing a visitor	2.33	2.98	3.14	2.82	.061	.120
Owners not picking up after their dogs	0.47	0.66	0.72	0.65	.525	.057

1. Means with different superscripts differ statistically at $p < .05$

Table 27. Percent of time norm was exceeded

	Percent of Time Norm was Exceeded						
		Frequency of Walking Dogs at OSMP					
	Entire Sample (%)	Never (%)	1 to 4 Visits per Month (%)	2+ Visits per Week (%)	χ^2	*p*-value	Cramer's *V*
Dogs off trail	18	20	25	15	5.37	.068	.116
Owners repeatedly calling or yelling at their dogs	22	19	24	21	0.69	.709	.042
Dogs "play" chasing another dog	16	17	17	14	0.66	.720	.041
Dogs flushing birds	9	8	9	9	0.67	.967	.013
Dogs causing wildlife to flee	14	15	15	14	0.22	.897	.024
Dogs approaching uninvited	27	30	29	26	0.70	.704	.043
Dogs jumping on a visitor	22	19	23	22	0.51	.777	.035
Dogs licking a visitor	12	12	16	10	2.52	.284	.083
Dogs pawing a visitor	12	15	14	11	0.96	.620	.051
Dogs sniffing a visitor	20	26	21	18	2.20	.333	.077
Owners not picking up after their dogs	46	42	46	47	0.47	.792	.034

Table 28. Perceived problems associated with each behavior

	Frequency of Walking Dogs at OSMP					
	Never (%)	1 to 4 Visits per Month (%)	2+ Visits per Week (%)	χ^2	*p*-value	Cramer's *V*
Dogs off trail				25.55	< .001	.168
Not at all a problem	54	55	72			
Slight problem	26	32	20			
Moderate problem	10	10	6			
Extreme problem	10	3	2			
Owners repeatedly calling or yelling at their dogs				7.05	.316	.084
Not at all a problem	24	31	37			
Slight problem	43	47	41			
Moderate problem	24	16	16			
Extreme problem	9	6	6			
Dogs "play" chasing another dog				15.87	.014	.135
Not at all a problem	51	63	69			
Slight problem	23	25	23			
Moderate problem	17	8	6			
Extreme problem	9	4	2			
Dogs flushing birds				3.94	.684	.064
Not at all a problem	31	32	30			
Slight problem	27	30	29			
Moderate problem	19	22	26			
Extreme problem	23	16	15			
Dogs causing wildlife to flee				7.08	.314	.083
Not at all a problem	27	29	21			
Slight problem	19	21	24			
Moderate problem	26	18	26			
Extreme problem	28	32	29			
Dogs approaching uninvited				7.50	.277	.087
Not at all a problem	28	40	37			
Slight problem	36	32	37			
Moderate problem	19	15	18			
Extreme problem	17	12	8			
Dogs jumping on a visitor				3.35	.764	.057
Not at all a problem	22	23	19			
Slight problem	27	25	23			
Moderate problem	20	25	27			
Extreme problem	31	27	31			
Dogs licking a visitor				4.59	.597	.066
Not at all a problem	41	40	41			
Slight problem	34	33	30			
Moderate problem	12	20	17			
Extreme problem	13	7	12			
Dogs pawing a visitor						
Not at all a problem	27	26	25	2.10	.910	.045
Slight problem	33	29	27			
Moderate problem	22	27	29			
Extreme problem	18	18	19			
Dogs sniffing a visitor				9.38	.153	.096
Not at all a problem	57	56	57			
Slight problem	29	31	30			
Moderate problem	6	7	11			
Extreme problem	8	6	2			
Owners not picking up after their dogs				1.94	.925	.044
Not at all a problem	12	11	10			
Slight problem	14	16	13			
Moderate problem	22	24	27			
Extreme problem	52	49	50			

Table 29. Beliefs about off leash dogs

	Frequency of Walking Dogs at OSMP					
	Never (%)	1 to 4 Visits per Month (%)	2+ Visits per Week (%)	χ^2	*p*-value	Cramer's *V*
I enjoy watching dogs off leash at OSMP areas				49.78	< .001	.239
Disagree	17	6	2			
Neutral	37	22	12			
Agree	46	72	86			
It's OK that off leash dogs use OSMP areas as long as they do ***not*** affect me				7.82	.098	.098
Disagree	18	7	8			
Neutral	14	22	20			
Agree	68	71	72			
Just knowing that off leash dogs are allowed in OSMP areas is a problem for me, even if I never see them				23.95	< .001	.179
Disagree	73	92	95			
Neutral	17	6	3			
Agree	10	2	2			
The behavior of off leash dogs is a problem at OSMP areas				13.68	.008	.124
Disagree	58	72	80			
Neutral	26	17	13			
Agree	16	11	7			
I do ***not*** think that there are any real impacts from off leash dogs at OSMP areas				3.70	.449	.063
Disagree	33	33	32			
Neutral	29	28	22			
Agree	38	39	46			
Dog owners who ***cannot*** control their dogs off leash ***should not*** be allowed to visit OSMP areas with their dogs off leash				4.43	.351	.067
Disagree	7	10	14			
Neutral	15	18	19			
Agree	78	72	67			
It is OK for a visitor to say something to a dog owner who does ***not*** have his or her dog under control				15.24	.004	.122
Disagree	3	4	8			
Neutral	13	8	19			
Agree	84	88	73			
Most dog owners are responsible individuals who keep their dogs under control at OSMP areas				16.40	.003	.145
Disagree	4	4	4			
Neutral	28	11	9			
Agree	68	85	87			
It bothers me when dog owners do ***not*** pick up after their dogs				7.80	.099	.179
Disagree	0	2	3			
Neutral	10	5	11			
Agree	90	93	86			

Table 30. Demographics

	Frequency of Walking Dogs at OSMP					
	Never (%)	1 to 4 Visits per Month (%)	2+ Visits per Week (%)	χ^2	*p*-value	Cramer's *V*
Sex				1.05	.593	.047
Male	48	42	41			
Female	52	58	59			
Age				56.95	< .001	.255
< 20	12	4	1			
21 to 30	20	27	6			
31 to 40	24	24	27			
41 to 50	18	24	35			
51 to 60	18	15	23			
61 to 70	5	5	6			
> 70	3	1	2			
Mean age	38.92	39.60	45.38			
Education				33.65	< .001	.204
High school or less	13	7	3			
Some college	21	6	6			
College graduate	31	39	33			
Some graduate school	8	14	12			
Masters degree	19	23	31			
Doctoral / professional degree	8	11	15			

Open-Ended Comments on Survey

Open-ended comments given	Number	Percent
No	613	65
Yes	338	35
Total	948	100

95% are very responsible. My observation is that runners w/dogs are the worse. Dogs run & poop off trail, owner proccupied w/workout. Too much horse manure on trail plus hoofs destroy trails when ground is wet like today.

99% of dogs I've encountered in OSMP areas have been fine. It's just a few irresponsible owners who fail to control their dogs that become a problem.

All of my answers are in reference to the OS north & east of Heatherwood neighborhood. Dog owners are overall very responsible & communicate well (i.e. if an off leash dog is approaching a leashed dog or a dogless walker, the understanding is to put t...

All of this depends on dog owners having good visght & voice control fo their dogs. Is there an obedience training that gives owners a certification for off leash if their dog is well trained?

Also I don't like wet dogs shaking all over me, dogs blocking the path (as well as their owners standing in the path talking to other dogownersorthe smell of waste cans alongthe trail that need more frequent emptying. Off leash dogs wandering uncon...

Although it happens very infrequently, I have had a few dogs become aggressive with my dog. I find this totally unacceptable. I do confront the owner in these cases and insist they put their dogs on a leash.

Although off leash dogs don't bother me personally, I know that in some areas they can adversely affect wildlife habitat & that's a problem. For some people any off lfeash (or on leash but not under control) dog can be a problem, my elderly mother & i...

As a runner who runs w/her dog on a leash (& wearing a gentle leader) it really perturbs me when an off-leash dog runs over to my dog. Since he can't run away b/c he's on a leash, he gets jerked around while we try to go on our way. The owner may...

As long as owners keep their dogs under control and the dogs do not bother other people, dogs or animals, I think they should be allowed off leash. More should be done to get people to pick up after their dogs.

As long as the dog owners are in denial these problems will continue.

Bad owners won't clean up after their dogs w/or w/o a leash law. Requiring leashes won't fix that. People that dislike will occasionally have little tolerance for any dog behavior normal or otherwise. Irresponsible owners should be dealt w, w/o pena...

Basically it's not the dogs who are a problem, it's the owners.

Bathrooms

Beautiful hiking trails.

Bigger problem is that owners don't ATTEMPT to control off-leash dogs. Often the dogs confront or growl at hikers.

Biggest problem as a dog owner is other dogs whose owners let them approach my dog.

Biting not ok. Killing/injuring wildlife not ok. I think the sight & voice control is a good way to control the dog situation. However I think the green tags are nothing more than a "dog tax" & have nothing to do w/a dog's obedience.

Boulder's dog haters are a sad small group of people who are getting too much attention. We're all God's creatures.

Bringing my dog to this area is extremely important to me & I hope Boulder/CO can remain one of the best places to have a dog.

Cobalt trail should be open to bikes in the uphill direction.

Confrontation w/a dog owner is not desirable.

Do not forget dogs are animals that will react instinctively-running off trail, sniffing people, etc. Leash law should control problem dogs not penalize normal canine behavior. The current sight & sound program, if ENFORCED STRICTLY, would force 95% o...

Do you think dogs consider itinappropriate for one human to sniff another? Should we be concerned ab out kidswho dont' listen to their parents in OSMP locations to parents repeatedly yelling at their kids?

Do your best. TShere's no ideal solution to all issues. But, the dog shit issue is a real bummer.

Dog excrement left in bags on the trail.

Dog laws are unrealistic & biased. Make horse owners "gardians" & give them poop bags, see videos, etc. More horses obey ?? that children don't obey. Hire teenagers to pick up poop. I'd rather instantly pay them then all the "enforcement" staff.

Dog leash rules could be in effect in certain areas. Not on trails.

Dog owners always think their dogs are perfect & friendly & will not bite!

Dog owners should occasionally agree to pick up ALL droppings on the trail on a given day (all). (I've done it!) (about 20 or more pounds).

Dog owners usual feel/think that everyone loves dogs. I have ?? experiences that make me fear dogs. Dog owners don't ?? & ?? don't understand me. They should be under control.

Dog poop is my biggest issue (& hikers going off trail).

Dogs are animals too! They should be allowed to enjoy the world as well! Thanks!

Dogs are great as long as their humans are responsible. Also horses leave more poop than dogs. What is being done about that?

Dogs are many times unpredictable & I feel owners should have complete control over dog, even leashed dog or not bring them to parks.

Dogs are not native-should stay on leash.

Dogs are only a problem w/my kids. As an adult, I'm fine w/dogs, but we have had conflict w/dog owners who are disrespectful of our kids, their fear of dogs & how the dog/kid interaction could harm the kid. Otherwise, I love dogs. We avoid "dog par...

Dogs aren't a problem to me-I enjoy seeing themn on the trails & don't mind them being off leash. But some people might be afraid of or dislike dogs & their opinions need to be respected.

Dogs must be allowed to accompany their owners to some degree. If we don't,aggression will follow, then ban the dogs alltogether. Dog parks aren't good enough. My dog is my companion, I like hiking, should I watch tv w/my dog? Not all dogs are sheph...

Dogs need socialization & space to run. Having them tied up all the time tends to make dogs ?? and aggressive???

Dogs need to be free to express & enjoy themselves outdoors. I enjoy watching them & interacting w/them as long as they are respectful & their owner is near. Dogs who show mild aggression toward people &/or dogs need to be on leash at all times.

Dogs need to be given room to be a "dog", they bark & poop & run. Some dog owners I've encountered on the trail are unpleasant & need to tell everyone how to run their lives.

Dogs need to be leashed.

Dogs not a problem in this particular open space-no birds, wildlife, etc. Dogs should be under control voice or on leash. Most guardians very good about controlling their dogs.

Dogs off leash are great as long as they're uner owner's control.

Dogs should be allowed to enjoy OS w/their owners. Dogs have long been a part of OS & Boulder culture.

Dogs should be allowed to enjoy OSMP off leash if they're well trained. I understand the greater impact they cause however the volume & type of trails also impact the natural environment. Well trained dogs will occasionally stray. Poorly trained dogs a...

Dogs should be on the leash & under control at all times.

Dogs should haave access to these areas as long as they can be somehwat "controlled" and owners are responsible.

Dogs sometimes are a problem. Over the past year I've definately seen more dogs off leash than on. Some owners are responsible, but many aren't.

Don't be a control freak, most dog owners are very responsible & it's our land also. We don't need Nazi gestapo handing out tickets & shooting dogs on sight.

Don't think putting people in jail for 90 days is at all appropriate-& Boulder is trying to hide/downplay this consequence of the government.

Dont' think dogs should be allowed off leash in an open space sucha s this that is so heavilyused & busy. Dog owners should always pick up after their dogs-no exceptions.

Enforce the rules on bad dog owners, fine them. Their dogs scare my kids.

Every election we vote for monies to maintain open space yet OSMP doesn't maintain trails-they wait too long-erosion takes place & area deteriorates. OSMP has to keep up w/maintenance.

Every time we visit OSMP dog/horse owner have been very respectful & friendly. Bringing animals to OS areas is a lifestyle that is very important to the majority of people I know!

Excellent survey-takers.

Generally, I think people are aware of their dogs behavior & are conscientious. Having 2 kids, I'm cautious when dogs approach especially if they "rush" us. What I don't get are those people that put the poop in a bag then leave it along the side of t...

Good job & behavior of owners better this year.

Good luck w/this! I think the park location makes a big difference. I don't see much difference w/the new system, although there are more dogs on leash. I never saw any out of control situations at BVR previously, maybe 1-2 times in 3 yrs-a dog not res...

Good survey. Pls also conduct survey about bikers-they have caused many more problems for my dogs than any other dogs.

Great place to hike.

Great trails-friendly dogs, Like the voice/sight response.

Have had voice & sight control in place for years. Tag program is unnecessary & costly.

Having areas where one's dog can be off leash is GREAT! Thank you OSMP.

Having moved to Colorado yesterday! I haven'texperienced any problems w/dogs in OSMP areas. I do think it would be a shame if they weren't allowed. I look forward to bringing my new (& well behaved/trained) pup to these areas. I think most people aro...

Horse manure on the trail is the biggest problem I see.

Horse manure on trails-similar to picking up dog excrement.

How will you define control & uncontrolled? What dog owner will admit to not being able to control their dog? Many dog owners seem to be unaware that just having a dog approach can be uncomfortable/scary. I've been bitten by dogs, it's frustrating to g...

I'm a City of Boulder OSMP volunteer. I wish I could get a ranger response sooner, or at all, when I see problems & violations.

I'm a dog owner & a biker. I think rude bikers are a FAR GREATER problem than off-leash dogs!

I'm a firm believer in fine-tuned seasonal restrictions over blanket ones esp. during breeding seasons when dogd impacts are large.

I'm an extremely responsible dog owner who follows any posted trail regs.

I'm going to be extremely disappointed if I can no longer bring my dog here.

I'm happy w/the way most dog owners have bee cleaning up from their dogs. I've a real problem the horse poop. It's large, attracts flies, etc & you have to leap over it. I'm NOT happy when I see that. It seems to have gotten to be more of a problem o...

I'm not a dog person. It bothers me that so many owners assume I'll enjoy meeting their dog. I can't guess how a dog that's unknown to me is going to act, so I'd rather not be approadhed by any of them. Owners who think they could control their dog if th

I'm not ok w/carrying poop bags around the loop. When I can pick it up & dispose of it on the way back (especially Dry Creek). I have found people at this trail to be very responsible w/their dogs & we mostly know each other's dogs & like interacting w...

I'm very "pro" have open spaces where dogs can run free. The one by Heatherwood where I go daily is terrific. I see VERY little, if any, undesirable activity. The only impact I see is lots of excrement. I pick up extra when I get my dog's. PLEASE do N...

I'm very discouraged by this survey. It seems to both my husband & I that the city of Boulder is getting more negative towards dogs. I have loved being able to bring my dogs on walks & to be able to let them off leash. I will be very saddened & discou...

I've been attacked by 3 dogs on this trail. 1 attack I chided the owner & said dog should be on a leash. She was nasty & said she had a leash, it was around her own neck!

I've had multiple experiences w/dogs displaying aggressive behavior & their owners 100 yds away. I've especially noticed a marked increase in the past 2 years.

I've never had a problem except an occasional dog running into me during their play. I think those complainers are the minority & would find something to complain about w/anything. Boulder is a bit too over-conscious, neurotic. I think if the dog is ve...

I've never seen any wildlife at the white rocks trail or east Boulder.

I've no problem w/dogs as long as they behave & owners clean up after them.

I've observed that most dog owners are VERY responsible, like myself. I could strangely suggest to leave some things as they are, i.e. Dry Creek is mostly used by dog owners w/their dogs, so there's no real conflict w/bikers/runners.

I've personally never had a problem w/a dog at an OSMP site. Dogs are a big part of Boulder & as long as theyremain mostly in control, I think they should be free to roam w/supervision.

I've spent MANY hours w/my dog at Marshall Mesa & have rarely seen any problems w/dogs & their owners. Only bikers who ride to fast past my dog on the trail!

I've used the Gunbarrel trail for years & find it very sad that we have to pay for tags for our dogs to be off leash on the trail. I personally think this is a great way for the city to make a few extra dollars! It's scarey to think of what will b...

I've walked a ton on OS & seen a ton of dogs off leash in the last 4 years & never had or seen a problem arise.

I agree in concept w/the new tag program. However, it all comes down to enforcement. The rules are essentiallyu the same as before they were just rarely enforced. Ithink the same will apply now unless it is enforced. Anyone can get a tag-it still d...

I am 100% in favor of the voice & sight control program.

I appreciate the off-leash program-I always keep my dog under control so that he is safe, & I also know that off-leash is a privilege-all visitors should be able to enjoy & if mydog ?? ?? non-dog visitor w/a good experience, then the non-dog person i...

I appreciate the survey to improve OS both for "dogs" & people. Gentle enforcement & education is the key. Read the ?? emailed art from the New York Times about Shamu (or what I learned from Shamu).

I appreciate the survey. Dogs should have no affect on me when I walk in OSMP, so owners should be totally responsible for their dogs.

I basically have seen positive dog & dog owner behavior in Bldr Cty. I think dogs need some freedoms too. Boulder Cty seems to have very responsible owners (of course, there are a few...)

I believe that off-leash is a privilege. Putting a dog on leash is not that big of a deal. It doesn't take away from the experience and both dog and person can still enjoy the trails Using the leash in areas where it is harder to control behavior is one w

I believe that OSMP staff have a bad attitude about dogs in general & dogs off leash in particular-thanks for asking.

I believe the OSMP is fantastic. I would liek to say that I can control my dog 100% of the time, but I can only do so apx 95% of the time. I know that doesn't meet the off-leash standard so I'm frustrated that I can't achieve that standard. My dog is v...

I don't know why you have the markers in a distance from the parking lot. My mom & dad can't walk far & theyused to come to the trailheads to watch the dogs chase balls. It's hard to walk in for them (week ankles).

I don't like being approached & sniffed, I like dogs. I appreciate dogs as companions but I don't believe owners should be allowed to negatively affect my visit to our OS. A well-mannered dog is a pleasure, but I see few of them.

I don't like it when other dogs charge mine.

I don't mind the dogs, & in fact they sometimes enhance a walk. This presupposes that the dog is well behaved & controlled.

I don't think that 2 calls is a problem for bringing your dog back to you. One seems a little extreme.

I don't think the dogs are any more of a problemthan the free roaming cows. The cows make mor eof a mess. Everyone's taxes pay for OS & trails. I definately was unaware that encouraging people to turn other is to ranger, for any reason other than a do...

I don't use trails especially w/my children that allow off leash dogs.

I enjoy being able to hike w/my dogs in all the OSMP trails in the Boulder area. My dogs are great & enjoy the outdoors being off leash. I think as long as dog owners are responsible-dogs should be allowed to enjoy these trails same as their owners.

I enjoy the freedom of teh OSMP & off leash policy. People just need to be responsible for their pets & themselves & behave accordingly.

I especially enjoy the Bobolink trail.

I feel it's a problem in case there are bears!

I feel OSMPs are a wonderful escape from the noise & stress & I'm very fortunate to have so many wonderful trails so close to my home. I hope OSMPs will be very favorable to dog owners. Boulder's recognized as a "dog friendly" community & our OSMPs...

I feel that dogs should be able to be free if they're tamed.

I have 2 dogs & am very upset by dog poop onour beautiful trails. I pick up after others every timeI go out. So do other dog lovers that I know. I feel it's a responsibility that goes along w/dog guardianship-most dogs on OS trails are well tra...

I have 2 dogs who don't like to "play" w/other dogs on most runs. I usually tell this to 3-5 owners whose dogs look "suspicious". 90% of the time owners try to control their dogs-50% of those times they are actually successful. The 10% who dont' try...

I have a permanent shoulder injury from being knocked down on a ski trail by 2 FRIENDLY (!) dogs. We live adjacent to Teller Farms OSMP where we frequently see dogs chase prairie dogs & sometimes harass cattle. When I ask owners to control their dogs...

I have never experienced but a few times that dog or owner were a problem (chasing/aggression) that warranted such a tag program)

I have never witnessed someone not picking up after their dog, but there seems to be a lot of poo on the trail (Mt. Sanitas) & who picks up all of the bags people leave behind, because there has got to be 100 of them scattered around on any giv...

I have no problem w/dogs off leash as long as they are undervoice control & owners pick up the poop. An example of a trail negatively impacted by dogs is Sanitas where, for some reason, there seem to be more irresponsible owners & more dog poop you c...

I have noticed a big change in behavior of people & their dogs since the tag program started. I have notice a lot more dogs on leash. I've notice dpeople being a lot more respectful & paying attention to their dogs behavior. I think there's an expectat...

I have seen more unpleasant behavior by CYCLISTS on the trail than by dogs.

I hope Bld Cnty continues to allow places for dogs to be off leash It's so much fun for all of us-The only problemon trails isthe bikers who don't announce behind & coming whizzing past on a path that is multi-use.

I like dogs. I feel many owners are irresponsible & minimize the impact their dogs has on OSMP & other visitors. I have been knocked down by a running dog & nipped by 1 that was off leash. In both cases the owner said "My dog has never done that." Owne...

I like the green tag program. We need more parking.

I like the new tags needed for those owners who wish to have their dogs off leash. I love how dog friendly parks have become & appreciate the steps taken to make dog owners responsible.

I like the new trailhead leash program.

I like the open space for my dogs!

I like to be able to take the dogs to the park, it's nice tolet them get out & run.

I love coming here w/my dog & he is very well trained. Wouldn't come if I couldn't come w/him.

I love dogs but it's a problem on the trails when theyare off the leash & not well trained. They scare my kids.

I love OSMP

I love the Dry Creek trailhead, best dog park ever!

I miss when the other OSMP users were friendly. People don't ?? ?? "hello" much anymore. Also, the dog problem seems better under control lately.

I place a high value on being able to bring my dog to this area off leash.

I really think the dogs & their guardian sget a long w/almost everyone & that the very few times I have seen altercations in 30 years of walking dogs have probably resulted in some kind of education on both sides after each person had some time to reflect

I see lots of dogs but generally they are all well behaved & under voice control. I don't feel this is a problem. Could use some map handouts at trailhead.

I specifically bring my dog to OSMP areas so that he may be off leash & socialized w/other dogs. If I had ato leash him I would no longer enjoy OSMP areas.

I strongly believe that responsible pet owners shouldn't be punished, or limited in what theycan do becuse of a few people. From what I have seen over the years, education, awareness & better patrolling seem to work.

I strongly support the off leash program. In fact, I did a speech about voice & sight control in college. Whhile my current dog is too young for the tag program, I intend to train her so she can participate later in life. Most dog owners are very respo...

I think it's good for dogs to have a place to run & play, but there's so much damage from dog poop/urine off trail to vegetation. Also packs of playin gdogs are dangerous because they are running & not looking at people. I've been knocked flat by do...

I think it makes more sense to invest in free classes for dogs/owners instead of paying park rangers to hand out tickets.

I think it would be great to have more doggy bags & a couple more trash cans to increase picking up after dogs.

I think OSMP is overreacting w/new policy!

I think sometimes overfriendly dogs scare smaller kids which is the only real problem I've observed firsthand. Once told that my dog was frightening birds at walden ponds which I was unaware was a problem. Apparently different jurisdiction.

I think that off-leash dogs in Boulder are more well-behaved than in most other areas.

I think the off leash tag is stupid. There is the law. If there is a problem, enforce it. Dogs are dogs. THey add much to the quality of life. Once again Boulder lets a very small group dictate laughable rules, laws & ordinances. WERE THAT THERE WAS M...

I think the same scrutiny should be used w/bikes on OS w/horses, w/children, w/runners! I think each group should be treated equally, which means educated & charged for tags showing they understand their rules. I pay large city taxes, I resent being si...

I think this trail is great, please don't mess w/it.

I think trailhead leash & voice & sight tag & education programs a wonderful idea.

I think visitors to OSMP who are offended by joy in another being are disturbed & should be prohibited from OSMP until their therapy results in some gessation of their ego-centered-ness.

I think you're overthinking this.

I think your expectations are too high. It's a dog you're talking about!!

I took training my dogs to respect other & NOT to chase any wildlife very seriously & I expect other to do so as well. I get frustrated at dog owners who don't & who don't clean up pet waste. I also want to ensure we protect habitat (esp. ground nesti...

I typically don't see problems at off leash areas. The main problem I see is when people are at the off leash area & have a strong opinion against dogs.

I understand this is about dog behavior but the issues about typical # of observations is very subjective to what TIME you are in the OS & what DAYS. Being a regular user for the past 40 years I can't generalize the observations of the stated beha...

I use open space 4-6/wk for walking, exercising dogs, biking & horseback riding & strongly feel all users should be entitled. I support the new education effortsw by open space. I've also supported open space in tax increase & volunteering & would be v...

I use OS on a daily visit. Dogs & their owners are always polite & respectful.

Most people approach my dog- & tell me how beautiful she is. I DO NOT AGREE w/the new tag system. Nor do I believe that rangers should USE binoculars to spy on us

I used to be a dog lover. Because of many encounters w/aggressive off leash dogs at OSMP I no longer feel safe hiking or running by myself. I have had off leash dogs approach me uninvited & bark & the owners repeated ly have to call them making me fe...

I used to live in Boulder County & now live in Denver, I plan to move back to Boulder in the next year & one of the biggest reasons is to be able to run w/my dogs off leash in Boulder co's OSMP areas.

I visit the dry creek area daily to exercise/play/walk my dog. Over the years I've realized that those visitors I see are part of a close knit community of dog owners. People w/dogs almost exclusively use this particular park. Right now the park suff...

I walk w/dog owners & have often talked w/them about their dogs behavior.

I wasn't on the hike today but my wife brought the survey to me. When I do go to OSMP it's chiefly for hiking & photography & wildlife watching.

I wish that Boulder would have an area (besides the awful dog park) that would allow dogs that aren't perfectly behaved (not under total voice/site control) to be off leash. It would be nice if it was more of a hiking/walking area (like Dry Creek) ins...

If a dog & its owner display mild "problem behavior" they shold be asked to give their dog an obedience class-fnot fine $1000 or thrown in jail. If an owner/dog is negligent or irresponsible & present a adanger to others, they simply should be banned...

If a dog attacks arunner, the runner should have the right to defend himself/herself against the animal (example: kicking it in the throat)

If I have to leash my dog when I cycle, I will have no use for coming to any OSMP area. We would fight this in court!

If the dog's well behaved, I think it's fine.

If the owner can control the dog off leash then great. I like dogs & enjoy watching them outside.

If you're not gonna pick up after dog make sure you don't leave the mess in a plastic bag on the trail-I saw this twice today. I enjoy dogs & seeing dogs w/o leashes if they're under control & I don't care if they poop off trail. I hate it when there's...

In areas that are posted "dogs must be leashed" then no matter if they have a green tag or not, they must be leashed. A fine should be given out to any dog owner who doesn't obey teh sign. I'd love to be able to give out tickets to the dog owners who d...

In general, "voice control" has been a joke.

In general, dogs & their owners are fine.

In general, the dogs are well behaved. Owners should definitely pick up after them. I have had dogs press their nose against me & it's gross. Owners shouldn't allow it.

In order for OSMP areas to be enjoyable to all visitors (dog owners & non-dog owners), dogs should be kept under control at all times. If I was to bring myyoung grandchildren to the park, I would want them to feel safe & be able to play in the grassy...

In owning a dog & bringing it to a PUBLIC place one assumes certain responsibilites i.e. muzzling your dog, keeping it a leash, etc. This is only propoer ?? for the ?? other people & to protect the environment of the place. ?? should be treated...

In the Indian Peaks wilderness dogs are required to be on leash. Because of VOLUNTEER uniformed ranger patrols there has over the years been more compliance. Since the OSMP dog tag has gone into effect I have seen fewer violators & fewer dogs on th...

Inforce pick-up after dogs more strictly, no dangerous dogs allowed on OSMP

Is the responsible of the owners to train their dogs before heading to trails off leash.

It's also annoying to see the bags of dog poop along the trail that people leave behind & never pick up later!

It's been frustrating that so many controls are on the majority vs the minority (there are more dog owners than non-dog owners) It would be nice if the city would put money into free programs on training rather than implementing more "tags" & controls.

It's great that Boulder allows dogs off leash at their parks. It would be a shame if they ever discontinued allowing this.

It is BS that dog owners control their dogs. I am sick of smelling & seeing poop when I hike & I am upset ?? the effect of so many dog son the environment. Off leash should NEVER be allowed.

It only takes one really bad encounter w/a dog to make a person skittish about ALL strange dogs. Dog owners who don't follow the guidelines, especially when their dog is NOT in voice control should be fined heavily >$500.

It seems Boulder is focusing too much on this issue.j People often don't have their kids under control but that seems acceptable. People come to this park to let their dogs interact & play w/other dogs & have a good time.

It should be well posted that dogs may be off leash if under control & owner is responsible.

It was a great experience, after I caught my breath.

I think dogs should be allowed off-leash.

Just for public safety, dogs need to be leashed.

Keep off leash trails please!

Keep up the good work.

Leash law is good as is.

Leashed dogs create "problem" dogs. People who are phobic about dogs create distorted reactions in dogs & should therefore deal w/their issue rather than require dogs to be leashed.

Leaving bags of poop to pick up later is not acceptable. If you have a big dog you have the responsibility to carry the poop UP the hill & DOWN the hill.

Let dogs be dogs!

Let people bring their dogs off leash (former resident & frequent OSMP user).

Let them be off leash!

Like any other area in life, teh owner needs to be responsible & held accountable.

Like most elements of the political landscape in Boulder the debate over dog/pets on OS seems to be driven by a select few people who make noise. The vast majority of those citizens who own dogs & enjoy being outside ?? ?? are responsible. Furtherm.....

Love Chautauqua! Keep up the great work!

LOVE the dogs off leash. My dog is very well trained at 10 mos., & 99% of the time she does none of these behaviors. I would be heartbroken if the off leash program went away. I'd most likely stop using the trails.

Major concerns: uninvited dogs/aggressive dogs, owners who dont' pick up after their dogs, owners who "think" they have their animals under control when teh really don't.

Majority of dogs off leash are great. I don't want the few irresponsible dog owners to ruin it for everyone else.

Many dog owners seem to reason that as long as their dog doesn't catch an animal while off leash, then they are ok to run free. This misunderstanding is what is bothersome to me-since a dog running at animals will affert their patterns too.

More bike trails (single track) !

More mountain bike single track in Boulder County.

More open spaces specifically for dogs off leash.

More recepticles for dog waste.

More trails open for dogs would ?? overuse of land/trails, same for bikes.

Most dog/owners I see are very responsible, any problems came from a small minority of dog owners, & problems voiced are from a very focal minority. I wouldn't support further OSMP tax initiatives if dogs off leash weren't allowed to visit. I support t...

Most dogs & dog owners are responsible but the dog owners that don't have voice control of their dogs yet think they do make it uncomfortable & sometimes scary if teh dog approaches unrequested or the dog runs wild.

Most dogs are better behaved & cause lower usage impact at OSMP that NEARLY EVERY child at OSMP. How about leashing the unruly, destructive (spoiled) children?

Most dogs fine but some aggressive!

Most OSMP should be off-limits to all domestic animals for sake of wildlife. Some OSMP should be off-limits to people for sake of wildlife.

Most owners in Boulder are responsible & caring. IT's especially nice to live here because you can walk dogs off leash & get better exercise.

Most people are responsible dogs love to explore, it's ok if they run around, If dogs are ?? or ?? owners know it & act responsibly.

Most pet owners are very considerate, ?? ??.

My 6 year old was pushed into a gulch at Marshall Mesa

My big problem is owners who leave dog poop bags as if someone is going to clean up after them. Sense of ENTITLEMENT.

My dog is a husky! I keep her on leash b/c of her behavior traits. Other dogs guardians should have their choice on not to be told. What about horses?!!

My dog is quite well behaved, has her OS tag. I feel strongly she should be allowed off leash on OSMP & she uses it daily. It's a huge reason I live in Boulder.

My dog isn't very good off leash so when I visit OSMP, he stays on leash. Seems simple to me.

My dog Katie is very well behaved & polite. I would hate to seethis opportunity taken away from us.

My husband suffered a stroke. Many times "friendly" dogs react agrressively to his stance & even a friendly dog approachign can knock him off balance. Many dog owners seem to feel that having their pet off leash is a right but I believe Boulder is o...

My only problem w/ off leash areas is out of control dogs. I have one unfriendly dog that I keep on leash for that reason & off leash dogs that approach her cause trouble.

Need to open the number of trails to dogs & stop discriminating against dog owners.

No big deal w/dogs. But I'm real tired w/OS closing off so many white rocks trails to bikes.

No leash laws on hiking trails!!!

No need for open space if I can't bring my dog.

Not picking up after dogs or leaving filled bags alongside trails is the most frustrating problem. In general I think that most dog owners are responsible & considerate.

Off trail dog erosion is a huge problem on Mt. Sanitas. I have witnessed 20 years of weed invasion & trail degradation that I strongly attribute to dogs off leash.

On this particular visit we were horseback riding & I do worry that dogs are goign to get kicked since most of the time people let their dogs run up to the horses & sniff them. We do warn them of that risk, then it's their problem! However, we occasio...

Once in a while my dog goes off trail but she's very friendly & doesn't bother other people or other dogs.

Only met great dogs & owners REALLY appreciate that dogs are welcome especially off leash if under good voice command.

OSMP needs a SMALLER green tag for little dogs.

OSMP should be run for benefit of people, not dogs. Unfortunately, my impression is the reverse, i.e. osmp are ?? dogs-or atl east that is the reality.

OSMP staff member conducting survey was very coureous & professional.

OSMPs are many different spaces, can't expect same behaviors (from pets or owners) at all the parks.

OUT OF COMMISSION: 2 separate visitors attempted to take on this sheet & later declined.

Overall dogs (& most owners) are great. It's usually just the few uncontrolled dogs &/or irresponsible owners that make a negative impact.

Owners leaving poop bags at side of trail to pick up later is a problem.

Parts of this form are too confusing.

People are the issue - not the animal-I discontinued my use of the open space areas due to the rude people & all the rules.

People needto pick up after there dogs & it's very important that people only have their dogs off leash if they are well trained.

People talking on their cell phones (usually loudly) ruin the experience of being outdoors in OS. These cell calls are ALWAYS long rambling discussive events, not emergency or quick "I'll be home in 20 min" calls. People yelling at each other to commu...

Please don't open any more trails to dogs!

Please only allow dogs on leash. This is NOT a dog bathroom.

Please stop limiting areas for off leash dogs. It bothers me that dogs can't be off leash in the first section of Dry Creek anymore. My paraplegic friend used to like to sit at the table and watch me throw her the ball-she can't go the depth into the par

Please, please, please outlaw dogs not on a leash. They cause tremendous environmental harm & ruin the recreational experience. Please!

Plenty of people have dogs that are NOT friendly w/other dogs, these owners should have their dog on a leash. I've encountered people w/2 dogs that act aggressively toward my one dog, this has happened many times & is very frustrating. The whole dog t...

Prairie dogs are rodents, they shouldn't be considered "equals" to canine dogs. Fines for dogs entering prairie dog's fenced area should not be $1000 as warned at Dry Creek! If prairie dogs are deemed worthy of protection to THAT level, then better (m...

Prior to the changes (voice & sight) I was unable to bring my 5 year old son here because he would get hurt/scared every time by a dog who wasn't handled properly. W/the changes people are much more respectful & I will bring hiim again to try it out. S...

Really believe that problems associate w/off leash dog are more related to meanness otherwise dogs should have places to run off leash, just like wild animals-trails & streams. Important to have these designated areas.

Remember, dogs are people too!

Seems like 5-10% of dog owners are the problems.

Some childeren should be required to have leashes.

Steep single track trails were a poor choice for leash requirements due to increased danger. New tag program is a good idea.

Survey filled out according to experience before regs. Regs have helped & I'm starting to see some good changes in the past few weeks.

Survey should distinguish between OSMP areas where dogs are allowed (& customarily frequently have been) off leash, & where they aren't. Why no questions on new green tag?

Tags are too big for small dogs.

Tend to think people who use the Chaut.trails are very responsible w/their dogs.

Thank you for this survey.

Thank you so much for well maintained trails & concern for people & pets.

Thank you very much for getting my input. I appreciate the effort to cater to all users of these areas.

Thank you!

Thanks for asking!

Thanks for the open space.

Thanks for your hard work!

Thanks!

Thanks.

I appreciate your asking.

The largest problem I see is paranoid on leash dog owners who think every dog is out to attack their dogs. Today I observed one lady drag a leashed dog off trail to avoid normal dog to dog contact on trail. Was truly bizarre but see this fairly regularly.

The license to walk your dog off leash is bogus! It doesn't in any way assure that a dog owner w/this license will behave off leash. It's simply a money maker.

The majority of owners are responsible but problem dogs do exist and their owners do not feel that it's their dogs that are the problem. I don't know what the solution is - it's not fair to make everyone use a leash, but there is no other feasible way to

The money spent for this all the legal mumbo jumbo staffing, etc is better spent fighting disease, education, helping the poor & homeless, etc.- reducing our taxes for heaven's sake!! Need depts/programs which are 1. effective (benefits outweigh cos...

The most critical issue that we face w/regard to dogs is picking up the poop!

The new regs are fine in theory, but I wonder if theywill solve the problems they seem intended to solve. Most people obey the rules already, those who don't won't get the tag. Another conflict mediation technique would be to educate non-dog owners on...

The new rules discourage the use of OSMP. The new sigs are missleading.

The off leash parks are one of the reasons I think this area is so great. I like the new tag program.

The on-leash policy has created more dog aggressive behavior-they don't have their "natural" protection.

The only thing that bothers me are dog owners who don't pick up after their dogs.

The OSMP is the reason I livein Boulder. I appreciate everything the city & county does to preserve this. Most dogs I see are well behaved & the owners respectful, so I don't see a problem, as long as they aren't affecting wildlife. Thank you for caring.

The parks has done a good job on this & even though Blue doesn't go off leash we would be very unhappy if the trails wereclosed off. Part of the reason we moved back to Boulder from Lyons.

The presence of & interaction w/so many friendly dogs greatly increases the enjoyment of these experiences & to the quality of life in this area. Please keep it as is. Thank you.

The problem I see is dog owners take the whole trail width don't move to side when necessary. But runners do that also, when running in groups.

The trails are beautiful!

The trash buckets stink w/poo.

The website to register for voice control is too difficult to remember-a longer name spelled out would be much better (boulder dogs voice control.com)

The worst part of unleashed dogs (currently) is that they are unpredictable as I approach on my bike,even when slowing down. Dog owners don't seem to understand how difficult it is to pass a moving target on a bike.

There's nothing wrong w/dogs out here as long as they are controlled. Off leash dogs can cause problems interacting w/leashed dogs when the former aren't kept in check.

There's very few problem dogs/dog owners. EVERYONE should pick up after their dogs. It's the best part of my dogs' day to visit OSMP areas.

There are plenty of places to walk, hike & watch wildlife in CO! Many of these places reqssuire dogs to be on leash. Other places dogs aren't even allowed. If people have a problem w/OSMP locations, GO SOMEWHERE ELSE!

There are so few places in Boulder where dogs can be off leash. Let's preserve these areas for dogs & their owners.

There are so many factors to this survey-it would be hard to accurately measure problems. When a dog is sick &: experiencing diarrhea-hard to pick up! Puppies aren't always perfect but need a place to run & come back-that's the whole point. Most us...

There is nothing inherently wrong w/dogs. People need to be responsible for them.

There seem to be some extremists plenty of responsible owners, spoilt by a few irresponsible selfish dog owners.

There should be somewhere that people can enjoy osmp w/o encountering dogs.

There was substatially more horse poop & dog poop than I typically observe. Also, numerous bagged dog poop left trailside. Yuk!

These trails kick ass

Things are gettinga little too extreme. As a bird watcher of long time,it is not as bad as some makeit out to be.

Things have improved so much w/waste pick up over the past few years, used to be pretty bad before teh parks took measures to correct! The largest problem I see are the animals off leash who aren't controlled by owners & chasing deer & other anim...

Think a lot of this is a waste of time & money. could be better spent in other ways. i've been at open spaces w/dogs for 10 years w/rare problems, none serious.

This is a lovely area to walk or hike.

This is my 1st time on a rec path here & it was very nice, much different then teh city bike path I'm used to.

This place is a wonderful one. I want people to enjoy & preserve this place forever.

This survey fails to differentiate among areas dog behavior that is unacceptable in some areas is perfectly all right at dry creek. almost no one comes here w/o a dog. a set of unwritten rulees has ?? that worked perfectly well w/o osmp intervention...

This survey makes it appear that dogs & dog guardians are being singled out as the biggest problem in OSMP. There are bigger problems to consider such as people/bikes making satellite trails off of the main trails, people leaving food outside their hom...
This survey needs to distinguish between os areas that allow dogs off leash & those that don't. The survey has this fatal flaw. Therefore, I am not going to fill out the entire ?? as the info isn't accurate.

Too many dogs off-leash around places like Mapleton school, N Boulder park, Eben G fine, & also around Mapleton Hill. More enforcement of leash laws would be much appreciated especially because of unpredictable dogs & young children. I've had several
Use has gone down significantly & now see more problems or potential problems w/dynamics between leashed & unleashed dogs.

Usually people & the dogs are very well behaved & no problem.

Very much enjoy bringing my dogs off leash here.

W/off trail, just concerned about erosion, destruction of habitat. I like dogs, but don't like dodging them on the trail. If there were "no dog trails" I would use these instead.

We arrive very early and meet up with one dog owner that has good control ofher pet and have had no problems with dogs.

We have had problems w/dogs jumping on us. Also concerned w/dog feces on the trails any time of the day.

We have stopped riding our bikes on weekends on bike/walking w/dog trails b/c of many near collisions we have either experienced personally or observed between bikes & dogs that weren'tbeing adequately controlled. Just too many dogs.

We just moved from NY, where there are VERY few areas dogs are allowed off leash, so we joined the program right away & have not experienced any problems.

We need a place (lots of them) to take our friendly well behaved dogs. Don't let a few politically active, outspoken people ruin it for the rest of us!

We very much enjoy hiking here w/our dog. I believe most dog owners use the open space responsibly. Thanks.

What bothers me most is when people leave their dog poop bags on the trail for someone else to pick up.

What does education have to do w/this

When dog owners leave poop in a plastic bag on the trail, it may be worse than just the poop. I don't mind being approached by a friendly dog. It's unsafe for a dog to get too close to a horse on the trail, as they could get kicked.

While I commend OSMP for attempting to gather info about this issue, I feel that the survey is too general to gain much meaningful info. For example, these questions are not site specific which biases my responses. Dry Creek is a very different site f...

With this issue-common sense needs to rule. Meaning people who are responsible dog owners & have control over there dogs should be allowed some off leash freedom. Otherwise not!

Would like to comment on HORSES: dog owners are supposed to pick up after them, horse owners aren't; horses obstruct running; some horse owners aren't having their horses under good control.

You guys have become militaristic against dogs. Through our taxes & now v & c permits, we pay your salaries & you have made Boulder a less pleasant place to live.